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THE RUBBER AGE

VOL. XIV. NO. 9

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THE RUBBER AGE

The Only Twice-a-Month Rubber Publication

VOL. XIV. FEBRUARY 10, 1924 No. 9

MID-WEST ASSOCIATION HOLDS ANNUAL MEETING

T. R. Follen Re-elected President For 1924—At Chicago Convention—Viles Says Profits Mean Elimination of Wasteful Expense—Banquet Made Doubly Enjoyable by Entertainment.

The fifth annual dinner and general election of the Mid-West Rubber Manufacturers' Association was held Tuesday, January 29 at the Hotel Morrison, Chicago, Ill.

The Board of Directors' and Executives' Meetings which were held in the morning, resulted in the re-election of Thomas R. Follen of the Lion Tire and Rubber Corp. to the presidency of the Association for the ensuing year. J. B. Gabeline, of the Standard Four Tire and Rubber Company of Keokuk, Iowa, was elected first vice-president; E. O. Blekre, of the Blekre Tire and Rubber Company, St. Paul, Minn., second vice-president, and L. E. Sexton, of the Inland Tire and Rubber Company, Chicago, secretary. Directors elected were C. D. Grant of the Myer Tire and Rubber Company, Columbiana, Ohio; O. H. Williams, Lancaster Tire and Rubber Company, Columbus, Ohio; E. O. Blekre, St. Paul, and C. C. Christie of the Hawkeye Tire and Rubber Company, Des Moines, Iowa.

W. O. Rutherford, president of the Rubber Association of America, and A. L. Viles, general manager of the Rubber Association, were scheduled as the principal speakers at the meeting, but much to the regret of the Mid-West members Mr. Rutherford was unable to attend on account of the press of business in Akron.

At the morning session Mr. Viles took

(Continued on Next Page)

OFFICERS AND DIRECTORS

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O. H. Williams	Carl Pharis

AUTO OUTPUT JUMPS 55 PER CENT IN 1923

Official Total of 4,012,856 Cars and Trucks Show Gain of 1,426,807 Over 1922—December Lowest Since February, Exceeds any 1922 Month.

According to figures issued by the Department of Commerce production of automobiles in December 1923 totaled 303,143 comprised of 275,268 passenger cars and 27,875 trucks. These figures are based on reports received from 186 manufacturers, 96 making passenger cars and 119 making trucks (29 making both passenger cars and trucks). Data for earlier months include 12 additional manufacturers now out of business. Figures on truck production also include fire apparatus and street sweepers. The total output of passenger cars for 1923 is given as 3,636,599, as against 2,339,768 in 1922, while truck output totaled 376,257 in 1923 as against 246,281 in 1922. This made a total of 4,012,856 cars produced in 1923 as against 2,586,049 in 1922, an increase for last year of 1,426,807 cars, or approximately 55.2 per cent.

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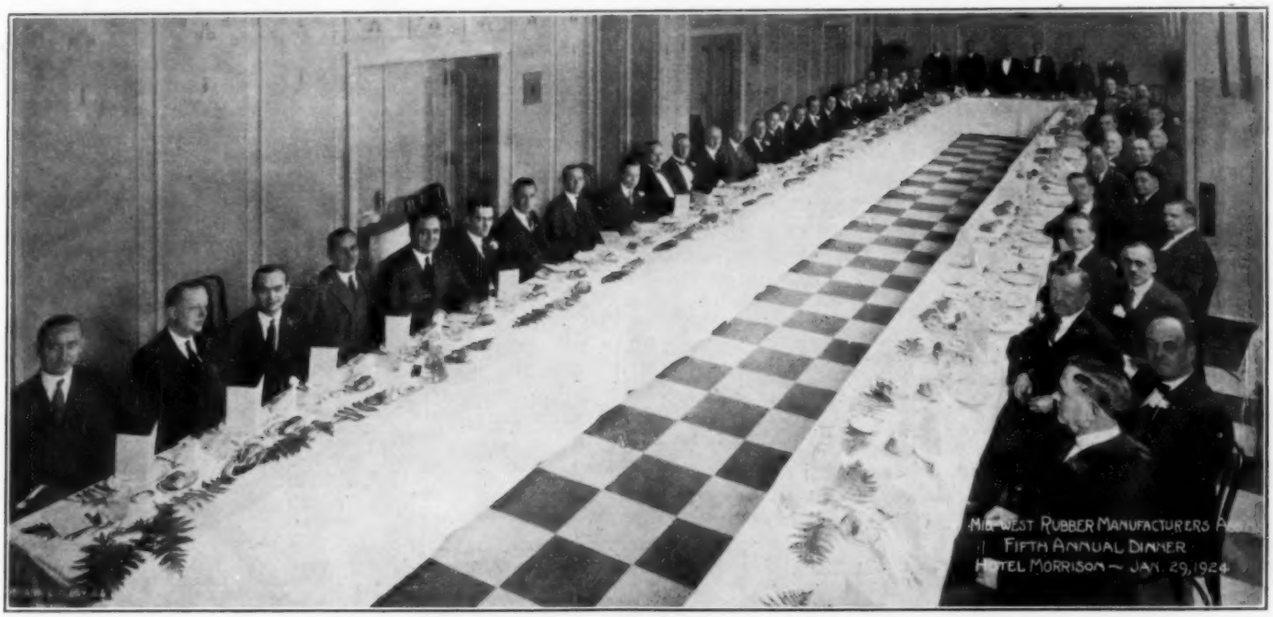

Fifth Annual Dinner of The Mid-West Rubber Manufacturers' Association Held on January 29, 1924, at Hotel Morrison, Chicago, Ill.

MID-WEST ASSOCIATION HOLDS ANNUAL MEETING

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up the subject of the rubber industry's remarkable career, and explained his reasons for believing it is potentially one of America's greatest industries. He expressed much regret for the evil effects wrought in the industry by rumor spreading, "knocking" and loosely made statements. He said that he felt that the consumer price list is now less necessary than ever before and because retail conditions and locations influence the cost of doing business and therefore prices, it has never been basically correct. Common sense, he said, must be the basis of all retail business on which manufacturers can depend on in the future. Mr. Viles characterized the tire dealer and "the man on the firing line." He also touched upon the subject of the progress being made in having the excise tax removed and of the headway the balloon tire is making with the motoring public.

Annual Banquet

The annual dinner which was held at 6.30 o'clock in the evening proved both a most interesting and pleasant affair. The banquet committee, of which L. E. Sexton was chairman, is to be congratulated on its efforts which were responsible for making the occasion so thoroughly enjoyable.

Mr. Viles made the prediction that the rubber industry's future profits are going to be made out of the expenses of the past, that is, by the elimination of the wasteful expenses and competition incident to so-called "National Advertising," and elaborate and entirely unnecessary branch house development, as practiced at the present time. Moreover, he said he believed that the future will bring more simplified methods of tire distribution with manufacturers redistributing from central or base stations. Adjustment policies, he thought, will undergo further tightening up and revision in the future. He urged co-operation and common understanding in the trade itself and advised the Association members to conduct their business along sensible policies irrespective of the action of others, shunning all rumors.

In conclusion, Mr. Viles spoke of the contribution of the Rubber Association of America to the Harvard Bureau of Economic Research in its effort to get at the bottom of dealers' problems. He thought the prospects for the ultimate success of this investigation are very good, and emphasized that it will be impartial and not guided in the interests of any one manufacturer or group. Mr. E. S. Babcox also addressed the diners in a short but interesting talk on the growing popularity of balloon tires.

A well arranged program of clever singing and dancing put the finishing touch on the most successful convention in the Association's history.

Rubber Chemistry Fellowship

Applications are being received by the Department of Chemistry of the Municipal University of Akron, Ohio, for the fellowships in the study of the Chemistry of India Rubber established by the Goodyear Tire and Rubber Company and the Firestone Tire and Rubber Company. These fellowships are of $500 each and are open to graduates of standard American colleges under the following conditions:

(1) The applicant shall have successfully completed undergraduate courses in chemistry including general inorganic chemistry, qualitative analysis, quantitative analysis and organic chemistry.

(2) He shall be recommended by the institution from which he has been graduated as a student of excellent ability.

(3) He shall accept the appointment with the purpose of entering the employment of the company providing the fellowship, at the end of the year's course, for at least one year.

(4) He shall be exempt from the payment of all fees at the Municipal University and shall devote a maximum of twelve hours a week to service as instructor or assistant in the Department of Chemistry.

Application blanks may be procured from H. E. Simmons, Professor of Chemistry at the University in Akron, Ohio.

Victor Arranges Finances

Victor Rubber Co., Springfield, O. has negotiated a loan of $150,000 on short term mortgage for working capital, and it is expected the loan will be liquidated before the end of the year. This is the customary financing at this time of the year, the company having last year borrowed $125,000, which was paid by Oct. 1. The company had a good first half, and despite the adverse conditions of the last half, finished with only a small loss. November was the worst month of 1923 and December showed a small profit. The outlook is considered good. The Springfield tire featured by Victor has met with a good reception and progress is reported in the mechanical departments.

Court Upholds Brubaker Patent

According to officials of the Swinehart Tire and Rubber Co., Akron, Ohio, manufacturers of the "Cushion" tire, the suit brought by the Lambert Tire and Rubber Co. of Barberton, Ohio, against the Brubaker Tire Company on the claim of ownership of the "Cushion" patent has been decided in favor of the defendants. The court ruled that the Lambert company is not entitled to any interest in the Brubaker patent and that the molds and tires used and made by the Brubaker Tire Company do not infringe the Lambert patents.

F. H. Andres Moves Office

Frederick H. Andres, Inc., Boston, Mass., importers of Egyptian and other long staple cotton, have announced the removal of their Boston office to the Internation Trust Building, 45 Milk St., Boston, on February 1, 1924.

AUTO OUTPUT JUMPS 55 PER CENT IN 1923

(Continued from Page 329)

December production of passenger cars was the lowest of any month last year with the exception of January and February. It compares with 284,921 cars in November and a peak of 350,410 reached in May of that year. The year's low was made in January with 223,819 cars. December production, however, was larger than for any month of 1922 when the peak was reached in June with 263,053 cars.

December, 1923, motor truck production also was the smallest for any month except January and February, but larger than for any single month of 1922. The peak of motor truck production last year was also reached in May with a total of 43,678. January was the year's lowest month with 19,720 trucks. December production compared with 28,066 in November.

Republic Orders Double

Unfilled mechanical rubber goods orders of Republic Rubber Corp., Youngstown, Ohio, have doubled within 30 days and operations of this department will soon be increased from 60 per cent to near capacity. Recent orders include important buying for rubber accessories from motor car makers. Truck tire department is at capacity.

Seger Heads U. S. Rubber Export

C. B. Seger president of the United States Rubber Co., has been elected president of the United States Rubber Export Co., Ltd., succeeding E. H. Huxley who has resigned.

Herbert E. Smith, vice-president of the export company has been appointed general manager. This is the second change in the personnel of the subsidiary companies of the United States Rubber Company within the past year. In June the resignation of J. N. Gunn, vice president, and president of the United States Tire Company was announced. At that time Mr. Seger was elected president of the tire company and he now heads the United States Rubber Company as well as two of its most important subsidiaries.

Dovan Has Six Agents

The English representative of Dovan Chemical Corporation is Buckleton & Nourry, Ltd., 13 Rumford St., Liverpool, England. With this appointment, and the five other agencies located in the United States and Canada, Dovan is in a position to supply promptly the demand for its products both here and abroad. Dovan's American and Canadian agents are: J. A. Kendall, Akron; J. E. Odell, Boston; H. T. Kraft, New York; Martin, Hoyt & Milne, San Francisco and Los Angeles; and T. E. O'Reilly, Ltd., Toronto.

IMPROVEMENTS IN BALLOON TIRES ANNOUNCED BY U. S.

To the intensive research and experimental work that has been carried on at several automobile factories under the supervision of the engineering departments, the United States Rubber Company attributes the radical improvements now incorporated in its balloon tires.

One of the most important discoveries made is the necessity for balance in low pressure tires. When the United States Rubber Company began the development of balloon tires it was found that they produced a galloping motion in some cars which, at high speeds, became dangerous. This "shimmying" was attributed to lost motion due to wear in the steering linkages, spindles and king-pins, and in certain instances was somewhat reduced by employing rebound snubbers adjusted to such a high tension as to partially deflect the springs. But it was never fully overcome until the problem was attacked from the standpoint of tire balance.

Investigation disclosed that many balloon tires were out of balance as much as a half pound at one point. The first step was to counterbalance the inner tube valve by making the tube splice opposite the valve and long enough to act as a counterpoise for both the valve and the overlap in the flap. Balloon tires equipped with balanced tubes greatly improved the operating characteristics of the car, but did not entirely eliminate "shimmying." It was, therefore, apparent that the tire casing itself must be brought more nearly into balance and, before this was accomplished, an entirely new method of tire building had to be developed and many changes in construction made.

As a result of this cooperative research the Royal Cord Balloon Tire today can be safely used on any car. Tested on a perfectly balanced rim and wheel mounted in frictionless bearings there is two point balance within one half ounce. All tires and tubes are put through this test and as a result, at speeds even as high as eighty miles per hour, do not impart the slightest gallop or wobble to a car.

This fundamental improvement removes what many automobile engineers have considered a major objection to the balloon type of tire, and emphasizes the need for close cooperation in development work between car and tire manufacturer.

Hall Becomes Commissioner

W. W. Hall, recently connected with the Howe Rubber Corporation of New Jersey and former traffic commissioner, was appointed industrial commissioner of the Akron chamber of commerce at a meeting of the board of directors Tuesday afternoon. The appointment was made upon recommendation of the industrial committee of the chamber.

Mr. Hall will be successor to E. E. Helm, former industrial commissioner, who resigned his position during November to accept a position with a large manufacturing concern in Detroit, Mich. Mr. Hall will take office on February 1st.

DUTCH RESTRICTION VIEW

There is much discussion again about the desirability of restricting rubber planting in the Dutch East Indies, says D. Keesing, financial correspondent of the *New York American* in the Netherlands. The most influential planters are against any restriction, either because they believe the rubber market conditions are favorable enough to warrant tapping on the present scale or because they think restriction would not help them, as the native plantations, where the Government could not force restriction for political reasons, are extending in such a rapid way that they are more and more becoming a decisive element in the matter. The production of these primitive inland estates is estimated at 25,000 tons a year and by some authorities 50,000 tons. Most probably the further course of events will, however, be governed by the scope of the American demand, which will in its turn depend on the general state of trade in the United States.

Akron Plans for N.T.D.A.

Plans are now being made by members of the Akron Tire and Accessory Association to make the 1924 National Tire Dealers Association convention in Akron in November the greatest in the history of the association. This announcement was made by A. Roderick, secretary and treasurer of the local association, following an election of officers recently. The new officers for the ensuing year are: O. B. Phillips, president; F. J. Cook, vice-president; A. Roderick, financial secretary and R. Provinance, corresponding secretary.

Sure-Foot Heel Elects

S. F. Snyder has been elected to the board of the Sure-Foot Heel and Rubber Company, Gettysburg, Pa. There is one other vacancy in the board of seven still to be filled. The recent stockholders meeting was well attended.

Big Fuller's Earth Discovery

A discovery of no inconsiderable importance is that of a vast supply of Fuller's earth which has been found lying 15 miles off the coast of Lake Erie near Vermilion, Ohio.

The discoverer, Edward G. Lampe, owner of the Soutwest Fish Company of Vermilion reports that the earth bed is about a mile wide and extends indefinitely out into the lake. Lampe predicts that an annual business amounting to $2,000,000 can be founded on his discovery and states that in the spring he will take out a 500-ton boatload daily.

Fuller's earth is an impure hydrous aluminum silicate resembling soft clay. It is utilized in many industries, including rubber. Most of the commercial product now found in the United States comes from Florida.

ORA RUBBER PRODUCTS GETS $700,000 PLANT FOR $40,000

Will Use Empire Refinery Property To Make Mineral Rubber Paving

The Ora Rubber Products Company, Oklahoma City, Okla., has purchased the plant and other property of the Empire Refining Company in that city. While the purchase price was not made public it was understood to have approximated $40,000. The plant was built more than ten years ago at a cost of about $700,000, but has been idle for more than two years. The new owners will immediately install equipment used in the manufacture of mineral rubber goods and will have its products on the market within sixty days, according to Charles Ora, President.

The Ora company produces a mineral rubber flooring from petroleum waste and also makes roofing and street paving. The company now operates a factory in Kansas City and has just completed arrangements to open another at Independence, Kansas, it is said. The Oklahoma City plant, however, will be an independent corporation and the largest of the three, according to Mr. Ora. Upward of 250 persons will be employed in the new plant which it is estimated will have a capacity of 60 tons daily.

"We believe that mineral rubber products will be used in every city of the country within the next few years and are preparing to manufacture them on a large scale," said Mr. Ora. "Oklahoma City capital will be sought in developing the local plant, although several eastern business men are interested. Within a short time it is likely a bond issue will be floated here exclusively for the Oklahoma City factory which is to be known as the Ora Rubber Products Company of Oklahoma."

Mr. Ora claims that mineral rubber as produced by his company has many qualities which recommend it highly for use in street paving. It is cheap and very durable, the cost being about the same as asphalt, while its wearing qualities are better. The mineral rubber paving comes in block form. An experimental strip has been laid in Kansas City and a section of street in the business district of Oklahoma City will be paved soon with the same material.

Cabot Closes Plant in W. Va.

Godfrey L. Cabot, Inc., Boston, Mass., manufacturers of carbon black, has made arrangements to close down its plant at Nancy's Run, W. Va., next November. This will be done in order to sell the company's natural gas to Standard Oil interests. The Nancy's Run plant has been manufacturing the PN Elf grade of carbon black since 1911. In 1918 the company closed down three of its plants to sell natural gas.

During the past year, however, Cabot, Inc., has built three new carbon black plants at Seth, W. Va., and is increasing its holdings in Louisiana and Montana. These will give ample output to supply requirements of all customers of the firm.

EFFECT OF EXCHANGE ON TIRE EXPORTS

Low Value of Franc and Lira has Caused General Reduction of Prices in Foreign Markets—English and American Manufacturers Suffer Mostly.

Tire prices have been reduced generally throughout export markets during 1923, the Michelin Company usually initiating these reductions, says the Rubber Division of the Commerce Department, in a review of last year's trade. This is a result of the declining exchange value of the French franc, and of the low rate of the Italian lire. Michelin tires are manufactured in and exported from France and Italy. The declining value of the franc which has not been accompanied by commensurately increased living costs in France, gives French tire manufacturers an advantage in labor costs so great as to render price competition from American firms very difficult, even though the prices in francs of imported raw cotton and crude rubber have increased proportionately to the decline in franc exchange. The French competition has affected the trade of British manufacturers more severely than of American firms.

In the annual meeting of the India Rubber, Gutta Percha and Telegraph Works, Co. Ltd., it was stated that the firm might find it necessary to confine tire manufacturing activities to their French plant, if the present situation should continue unchanged. The British Dunlop tire has increased its volume of business in the British market through a combination of advertising propaganda and a reported somewhat improved product, but in the face of the prevailing low tire prices, the profits of the business can scarcely have been very great, it is said. Many of the smaller British tire manufacturing companies are apparently finding competition in the tire trade extremely difficult.

Leland Optimistic

"The outlook for rubber in 1924 is very much better than in 1923." was the statement made by Lester Leland, vice chairman of the United States Rubber Co., just before he sailed on the Paris recently for a six weeks' trip abroad. "From a tire standpoint I think United States Rubber will have a much better year in 1924 than in 1923 because of increased consumption" said Mr. Leland. "There was a good deal of price cutting in 1923 that I don't expect in 1924. This will result in stabilizing of the tire industry. Our footwear business is progressing very satisfactorily. We haven't had as much bad weather yet as usual, but it generally averages up through the year just the same. The mechan'cal end of our business is progressing well, with substantial orders from factories of various kinds. Our bank loans have been reduced far below the peak of $50,000,000, but offhand I cannot give exact figures."

"GUTTY" TAKES THE COUNT AGAIN

The perennial clan that plies the wood and iron over the bunker frescoed landscape of Belleair Heights, Florida, during the months when there are plenty of seats atop the Fifth Avenue buses, have again proved to the chagrin of the skeptical that it's the golfer that counts —not the ball.

A couple of weeks ago a group of o'dtimers who were past masters in the art of soaking the gutta percha pellet lined up against experts of the newer school with both sides using the "gutty" spheroid. When the last divot had been replaced the "kids" were leading the "has beens" by ten strokes.

Bedford Residents Approve Plant

More than 300 residents of Bedford, Va., attended a mass meeting held recently in that city to discuss conditions regarding the establishment of a plant for the manufacture of tires and rubber goods in Bedford. The Bedford Tire and Rubber Company has been organized and chartered and holds a tested formula for a tire which it plans to manufacture as soon as the plant has been built.

May Have to Sell Marvel Plant Again

The property of the defunct Marvel Tire and Rubber Company, Sycamore, Ill., may go under the hammer again, if the recent purchasers, E. G. Cooper, A. E. Gassett and R. D. Alum cannot show cause why an order should not be entered for a re-sale of the premises. This ruling was entered on the petition of E. J. Morgan who alleges that the report of the sale having been approved and filed in December, the master reported no part of the purchase price of the property other than as shown in the report has been paid to the master by the purchasers, although the master has repeatedly demanded payment.

Odell Starts Production

Odell Rubber Company, South Bend, Ind., has started production of a new all-black tire. According to the temporary receiver George H. Crane, the outlook for the Odell company is now very bright.

Ashland Plant Active

The Ashland Tire and Rubber Company, Ashland, Ohio, is now producing on a schedule that calls for 250 to 300 tires a day. Officials of the company say that there are orders on the books for more than 5,000 tires.

KEYSTONE OUTPUT LARGER; WHIPPLE SEES BETTER PRICES

The Keystone Tire and Rubber Company, Kingsbridge, New York City, has resumed production with sufficient orders on its books at profitable prices to justify operation of the plant during the next year on a basis of largely increased production over 1923, according to D. W. Whipple, President.

Mr. Whipple in an address before the national convention of Keystone distributors stated that it was his belief that tire manufacturers have absorbed the last shock of inventory reduction. "They have been keeping their factories running for many months at prices that meant either an even break or an actual loss," said Mr. Whipple, "and it seems to me that even the overproduction of the last few years has been overtaken. All this, I feel, justifies us in resuming operations on a fairly active production program. It is no longer necessary to sell tires below cost to keep your wheels moving, and from a survey of the whole industry that I have just completed, I feel sure that the normal increase in business during the coming year will enable most of the tire companies to adhere closely to their 1924 programs in the matter not only of output but of prices as well."

Edward I. Alrich

Edward I. Aldrich, director and vice-chairman of the Board of Directors of the Hood Rubber Company died suddenly on Jan. 23, 1924, at his home in Brookline, Mass.

Mr. Aldrich was born in Upton, Mass., in 1851 and was the son of Sylvanus B. and Lucy J. (Stoddard) Aldrich. He was educated in the public schools and at Wilbraham Academy and upon leaving school entered business.

He was originally in the leather shoe business but in 1888 went with the Boston Rubber Co. When the Hood Rubber Co. was formed in 1896, he went with that company in charge of sales and in later years was in charge of credits. He became a director in 1914 and was also vice-president for some time. He was a director of the Hood Rubber Products Company.

Mr. Aldrich is survived by his wife, Mary P. Aldrich, two daughters, Mrs. Joseph A. Prentiss of Brookline and Mrs. Arthur F. Jones of Boston, and by a son, Richard S. Aldrich, who is a junior at Harvard.

Helen Knight McCreary

Helen Knight McCreary, wife of Chester McCreary, manager of the Highway Transportation Department of the Goodyear Rubber Company, died of pneumonia on Tuesday, January 15, at the McCreary home in Hudson, Ohio. Besides her husband, Mrs. McCreary is survived by three children and her parents, Mr. and Mrs. Lee Knight.

IMPROVEMENT SEEN IN RUBBER GOODS TRADE

R. G. Dun Finds Substantial Gain in 1923 Business—Footwear Slow But Mechanicals Do Well—Collections Are Good.

Generally satisfactory conditions seem to prevail in the rubber goods trade, special reports received by *Dun's Review* indicating a substantial gain in the volume of business during 1923, as compared with that for the preceding year. Retail sales of rubber footwear have been very light for the past few months, owing to the mild weather in nearly all parts of the country, but Spring trade in this branch was unusually active, bringing the aggregate for the year well up to normal. Manufacturers of mechanical rubber goods are, for the most part, operating on full time, and state that orders on hand compare favorably with those of a year ago.

Prices on most lines of rubber goods have shown little change for some time past, with the exception of a recent advance of about 10 per cent on all items in which cotton enters into the manufacturing process. The future trend of prices is rather uncertain, but no important fluctuations in the near future are anticipated. The detailed reports follow:

Boston.—Many of the leading manufacturers of rubber footwear are located in this district. During the early Fall their plants were operated at full capacity, but on account of the open Winter there has been very little re-ordering, and a number of factories have been shut down temporarily. The aggregate volume of business for 1923, however, was well in excess of that for 1922, although jobbers' sales are said to have shown a slight decrease. Business for the coming months depends largely on the weather, which, thus far, has called for the use of few overshoes or rubbers.

Demand for mechanical rubber goods and sundries has been very good throughout the past year, with sales showing a gain of approximately 10 per cent over those for 1922. The automobile tire situation is still somewhat uncertain. There has been a considerable falling off in demand for the less known makes and for seconds, but the leading manufacturers have slightly increased their business in this district. As a whole, conditions in this branch may be said to have improved, as compared with those obtaining six months ago, and prospects for this year are looked upon as quite favorable.

Providence.—Trade in rubber goods has been somewhat limited of late. Rubber footwear, particularly, has been moving very slowly, and jobbers and retailers report sales considerably below normal for this period. Some manufacturers in this line are operating on restricted schedules, or have closed down their plants for short periods during the past two months.

Philadelphia.—While trade in rubber goods has been rather quiet for the past two months, the aggregate volume of sales for 1923 was very satisfactory, showing a substantial gain over that for the preceding year. Garden hose sold well during the past Summer, owing to the long dry spell, and business in footwear and mechanical rubber goods was fairly active throughout the year. Conditions in the automobile tire trade appear to have improved considerably, and sales are now said to be running ahead of production. A general advance of 10 per cent took place on January 1 on all classes of rubber goods in which cotton enters into the manufacturing process, but quotations on other items have shown little change for some time.

St. Louis.—Sales of rubber goods during the past year increased about 15 per cent over those for 1922. Trade in footwear was active, especially in the early part of the year, while manufacturers of raincoats state that Fall business in their line was very good. The outlook for Spring is believed to be fair, although considerable hesitation is still displayed in placing future orders. While this city is not looked upon as a producing center for rubber goods in general, a large number of tires are manufactured here, and conditions in this branch are said to show some improvement, notwithstanding the fact that dealers continue to buy for immediate requirements only.

Cincinnati.—Conditions in the rubber goods trade appear to be quite favorable. Jobbers and manufacturers in this line report substantial increases in sale for the year just past, as compared with the 1922 totals. Manufacturing is not extensive in this city, although there are several plants turning out mechanical rubber goods, all of which are maintaining full time operations, with future bookings about on a par with those of last year at this period. With jobbers, some lines are quite active, but unfavorable conditions in the mining industry have tended to restrict sales of many items usually consumed in large quantities. All rubber goods in which cotton is a factor show a recent price advance of about 7 per cent, but most other lines are about on the same levels as those current a year ago.

New K-T Chalk Process

Calvin Stitt, General Sales Manager of the K-T Chalk Works, Chicago, Ill., has just returned from a trip to the plant and reports that the company's research department has perfected a process whereby any oversize particles are entirely eliminated from getting into the finished product from the mills during operation. This does away with the objection of specks, etc., which heretofore have been generally found in whiting or ground limestone. Many tests have been run in the laboratory as well as in the laboratories of various rubber factories, against standard specifications and the amount of residue has been found to average only about a quarter of the residue allowed in the standard specifications. This is especially valuable to manufacturers of footwear, tubing and mechanical goods where a fine product is required.

G. R. CROWTHER OF R.G.A. ARRIVES IN U. S.

Propaganda Secretary of the Rubber Growers' Association of London Here for Stay of Five to Six Weeks to Investigate Our Production and Publicity Methods.

Mr. G. Raymond Crowther, Propaganda Secretary of the Rubber Growers' Association of London arrived in the United States on January 23, for the purpose of obtaining first hand information and knowledge of American methods of rubber manufacturing, type of products, methods of distribution and publicity and to still further cement the friendship of the rubber growers and the American rubber manufacturers. "We have common interests," said Mr. Crowther to a representative of THE RUBBER AGE, "and teamwork will help the prospects of the whole rubber industry."

Mr. Crowther told of his stormy trip on board the Aquitania, part of which time he was sick with an attack of tonsilitis. Despite his physical disability, he immediately plunged into the work of becoming familiar with the American rubber industry and he has already arranged, with the assistance of Mr. Viles of the Rubber Association, an itinerary covering Boston, Washington, Akron, Trenton, Buffalo, Toronto and other cities.

Value of Rubber Publicity

Rubber propaganda, (we call it publicity in this country), has proved to be of great benfit in Great Britain in increasing the consumption of rubber articles and in helping create new uses for rubber, according to Mr. Crowther. Cooperative publicity is desirable for both the producer and the manufacturer. Many professions, engineering as an example, and the householder have not been properly educated in the use of rubber and Mr. Crowther states that only by means of publicity can this be accomplished.

Rubber crepe soling continues to prove satisfactory in England and according to Mr. Crowther, over 2000 tons of crepe rubber being used for rubber footwear during 1923. The sales are booming, both for sports and everyday wear and for workers who want a long wearing sole at a low price. Mr. Crowther will investigate, while in this country, the possibilities of the American market for this sole and attempt to help overcome any difficulties and prejudice which may exist.

In regard to the coming Rubber Exposition in Brussels, (April 1-16) Mr. Crowther said that it undoubtedly would serve to bring the producer, user and manufacturer into closer touch with each other and would show the world the importance of rubber and its service to mankind. The R.G.A. has arranged for three large and three smaller rooms for its exhibit which will include a showing of the various publicity methods and mediums used in the past few years, the history of rubber production, samples of commercial rubber with a competition and prizes for the best samples and a my-

(Continued on Page 348)

M. & A. M. A. 1924 Committees

G. Brewer Griffin, newly elected president of the Motor and Accessory Manufacturers Association, has announced the personnel of his working committees for the current year as follows:

EXECUTIVE COMMITTEE—G. Brewer Griffin, Chairman, Westinghouse Elec. & Mfg. Co.; W. O. Rutherford, B. F. Goodrich Rubber Co., Akron, Ohio; C. E. Thompson, Steel Products Co., Cleveland, Ohio; A. W. Copland, Detroit Gear & Machine Co., Detroit, Mich.; H. L. Horning, Waukesha Motor Co., Waukesha, Wis.

FINANCE AND EXPANSION COMMITTEE—G. Brewer Griffin, Chairman, Westinghouse Elec. & Mfg. Co.; C. E. Thompson, Steel Products Co., Cleveland, Ohio; E. P. Hammond, Gemmer Manufacturing Co., Detroit, Mich.; J. M. McComb, Crucible Steel Co. of America, Pittsburgh, Pa.; L. M. Wainwright, Diamond Chain & Mfg. Co., Indianapolis, Ind.; E. P. Chalfant, Gill Mfg. Company, Chicago, Ill.

COMMITTEE ON ASSOCIATION RELATIONS—H. L. Horning, Chairman, Waukesha Motor Co., Waukesha, Wis.; E. P. Hammond, Gemmer Mfg. Co., Detroit, Mich.; M. L. Heminway, Motor & Accessory Manufacturers Assn., New York City; A. W. Copland, Detroit Gear & Machine Co., Detroit, Mich.

MEMBERSHIP COMMITTEE—H. L. Horning, Chairman, Waukesha Motor Co., Waukesha, Wis.; C. H. L. Flintermann, Detroit Pressed Steel Co., Detroit, Mich.; E. P. Hammond, Gemmer Mfg. Company, Detroit, Mich.; J. M. McComb, Crucible Steel Co. of America, Pittsburgh, Pa.

BANQUET COMMITTEE—C. E. Thompson, Chairman, Steel Products Co., Cleveland, Ohio; E. P. Hammond, Gemmer Manufacturing Co., Detroit, Mich.; C. H. L. Flintermann, Detroit Pressed Steel Co., Detroit, Mich.

SHOW AND ALLOTMENT COMMITTEE—E. P. Chalfant, Chairman, Gill Mfg. Co., Chicago, Ill.; H. L. Horning, Waukesha Motor Co., Waukesha, Wis.; E. B. Clark, Clark Equipment Co., Buchanan, Mich.

COMMITTEE ON CODE OF ETHICS—H. L. Horning, Chairman, Waukesha Motor Co., Waukesha, Wis.; E. B. Clark, Clark Equipment Co., Buchanan, Mich.; E. P. Chalfant, Gill Manufacturing Co., Chicago, Ill.

New Tread Has Good Year

Increased sales, profits, and output of tires and tubes with no additional factory equipment expense, is shown by the report for the fiscal year of The New Tread Tire Company, East Palestine, Ohio. The report was read by the Secretary, W. O. Wallace, at the annual stockholder's meeting, held January fourteenth, 1924.

A 24-hour day schedule was necessary throughout last year in order to take care of the demand for the Company's products, and prospects for 1924 will require the same operations.

All directors were re-elected and the officers now elected are as follows: S. W. Tidd, President; E. P. Altenburgh, Vice-President & General Manager; W. O. Wallace, Secretary; O. W. Altenburg, Treasurer.

NEW HARDNESS TESTER ADAPTABLE TO RUBBER

A new device for testing the hardness of materials and which is believed to be a great improvement over old methods and expected to throw much needed light on some of the unsolved fundamental problems connected with hardness is the

New Hardness Tester

Herbert Pendulum Hardness Tester, a comparatively new product of Edward G. Herbert, Ltd., Manchester, England.

This instrument, which is shown complete in the accompanying cut, is for testing the hardness of substances ranging from lead to sapphire. It is especially applicable to hardened steels, and by simple adaptation is rendered suitable for testing rubber. It is said to dispense with all microscopic measurements and all difficult readings, and as it does not depend on impact, the readings are in no way affected by the mass or inertia of the specimen. It is portable and quick in action, the test taking only a few seconds. Heavy loads are not used and the test may be applied to thin and fragile articles without risk of breakage or defacement of finished surfaces.

The instrument which is extremely simple consists of a ball, 1 millimeter in diameter, held in a chuck in the center of a pendulum, six screwed weights whereby the center of gravity of the whole instrument may be adjusted to coincide with the center of the millimeter ball, which is of ruby or of steel, a graduated weight mounted on a screw immediately above the ball and a curved tube and bubble and a scale graduated from 0 to 100 fixed at the top of the instrument. By raising or lowering the weight above the ball the center of gravity or the instrument can be brought to a pre-determined distance above or below the center of the ball. The instrument tends to remain in any position in which it may be placed, whether upright or tilted at an angle.

Williams Foundry Reorganization

With the prospects in the rubber industry bright for 1924, officials of the newly reorganized Williams Foundry & Machine Co., with some of the original organizers and incorporators again heading the list of officers, look for an active year in business.

Confining most of their business operations to the rubber engineering field and the manufacture of rubber machinery, the concern relies principally for its business on the activity in the rubber world.

J. K. Williams, H. Lloyd Williams and C. Franz, former active members of the company, return to supervision under the reorganization plan.

J. K. Williams has been named president and C. Franz, secretary. The actual supervision of the company's affairs in the future will be carried on by H. Lloyd Williams who is to serve as acting manager, vice president and treasurer. He will have as his chief aid, F. C. Vandergrift, the new general manager.

F. E. Holcomb, former president and general manager, who resigned recently, was named a director under the reorganization scheme. E. C. Jackson, former secretary, is retained as assistant secretary.

Webster Heads New England Branch

F. S. Webster has been re-elected chairman of the board of directors of the New England Tire and Rubber Company, Holyoke, Mass., for the first six months of 1924. S. R. Huntley was elected secretary at the stockholders meeting to replace C. S. Huntley. A comprehensive report of sales, manufacturing and financial conditions of the company was submitted by the Board. A survey of the sales Department showed that the company has sufficient orders on its books to keep it running at full capacity, day and night, for the next two months.

St. Paul Distributes 8%

An eight per cent, semi-annual dividend was paid January 15 to stockholders of the St. Paul Tire and Rubber Company, St. Paul, Minn. This covers business transacted by the company during the last six months. The company has planned the erection of a factory building in St. Paul for the production of its entire line. At the present time the firm's products are being manufactured elsewhere and shipped to St. Paul for distribution, while all business operations are carried on in St. Paul.

Russel Clark Forms Company

Russel B. Clark, for the past five years a branch manager of the Goodyear Tire & Rubber Company, who resigned his position with that concern, has organized his own company under the name of Russel B. Clark Co. which will handle solid and pneumatic tires of the Goodyear company in Columbus, Ohio.

Goodyear Makes Golf Balls

Golf balls are to be added to the line of products manufactured at the Akron plants of the Goodyear Tire and Rubber Co. This announcement was recently made by officials who stated that the company has engaged the services of "Jock" Harvey, a native of Edinborough, well known in England as an expert in the manufacture of golf balls. Mr. Harvey will be the manager of the new department. It is said that tests of the new ball show a greater degree of distance flight than a majority of either English or American balls.

Small Gain for Pioneer

The annual statement of the Pioneer Rubber Company, Willard, Ohio, shows that the financial status of the company in 1922 and 1923 was changed from an operating loss of $71,000 year before last into a small net profit last year. In view of the good showing made last year officers of the company have predicted unprecedented increase in business for 1924. The company last year did a business of $570,000, despite a severe shortage of help. President T. W. M. Beeman said that he could not give stockholders any assurance that dividends suspended in 1922 will be resumed in the early future. He stated that the directors are more interested this year in making the company financially sound for the future and in increasing its earning capacity than in paying dividends.

Central Not to Rebuild

Stockholders and officers of the Central Rubber Reclaiming Company, Defiance, Ohio, have decided to abandon plans for a refinancing of the company in order to rebuild the plant which was wiped out by fire last August. According to manager Charles L. Kintner several outside interests are considering the purchase of the remaining equipment of the plant and that there is slight possibility of the plant being put into operation again.

At the time of the fire, according to Mr. Kintner, the company was in a very good condition. The books then showed accounts receivable of $31,000 against $7,500 accounts payable. Inventory was $20,000. The company then employed an average of 37 men daily on a weekly payroll of $1,000. In its last year of operation the company produced 1,760,000 pounds of finished products, or approximately four carloads monthly. It consumed about six cars of scrap rubber monthly.

Pennsylvania Runs Three Shifts

Under compulsion of heavy orders the factories of the Pennsylvania Rubber Company of America at Jeanette, Pa., are running three eight-hour shifts daily, according to officers of the company. In addition to normal demand it is said that the company shipped 14 carloads of Vacuum Cup tires and Ton-Tested tubes to one of the big automobile manufacturers, and several carloads to a large distributing connection in the Southwest during the month of January.

SWEDISH ARMY "RUBBERNECKS"

A rubber collar will be part of the equipment of every Swedish soldier, according to reports from Berlin which state that the Permanent Collar Company of Berlin has received an order for collars for this purpose from the Government of Sweden. Officials of the German company say that business is booming. It is not stated how many hundred million or billion marks (paper) each rubber collar fetches, but it is evident that Germany is going in strongly for long wear and small upkeep these days.

December Cotton Consumption

WASHINGTON Jan. 15.—Cotton consumption during December amounted to 461,560 bales, as compared with 529,342 bales consumed during the same month in 1922, the Census Bureau reported today. As compared with the same month in 1922 lower figures were also reported for stocks and imports during December, but a substantial gain in exports was reflected. Cotton consumed during the five months ended December 31 amounted to 2,510,472 bales, as compared with 2,662,669 bales during the corresponding period of 1922.

Cotton on hand in consuming establishments on December 31 was reported as 1,623,453 bales, compared with 1,917,231 bales in December, 1922, and in public storage and compresses as 3,526,164 bales, as against 4,069,470 bales. Active spindles during December were reported as 34,044,870, as against 34,976,103 the previous December.

Consumption figures excluded linters, but for December included 17,483 bales of Egyptian, 7,310 bales of other foreign, 2,238 bales of American Egyptian and 495 bales of Sea Island. Stocks in consuming establishments included 45,354 bales of Egyptian, 15,699 bales of other foreign, 11,848 bales of American Egyptian and 3,877 bales of Sea Island. Stocks in public storage included 26,865 bales of Egyptian, 15,688 bales of other foreign, 19,214 bales of American Egyptian and 3,183 bales of Sea Island. The five months' consumption included 89,403 bales of Egyptian, 35,630 bales of other foreign, 12,530 bales of American Egyptian and 2,016 bales of Sea Island.

Linters not included above were 40,892 bales consumed during December in 1923 and 49,143 bales in 1922; 112,949 bales on hand in consuming establishments on December 31, 1923, and 123,215 bales in 1922, and 64,232 bales in public storage and at compresses in 1923, and 38,445 bales in 1922.

Imports of foreign cotton, in bales of 500 pounds, totaled 35,601 bales during December, as compared with 68,547 bales during the same month of 1922.

FIRESTONE ANNOUNCES CUT IN BALLOON TIRE PRICES

The gratifying public reception the balloon tire has received, making necessary increased production, has enabled the Firestone Tire and Rubber Company to announce reductions ranging from 13½ to 21 per cent, on prices of its balloon casings and of 9 to 37 per cent on tubes.

These reductions are made according to size, as follows: On 4.40 (Ford size) casings reduced 13½ per cent, tubes 37 per cent. Size 5.25, casings, 15½ per cent, tubes, 32 per cent. Size 6.20; casings 17 per cent, tubes, 14 per cent. Size 7.30; casings 21 per cent, tubes, 9 per cent.

Firestone is now turning out about 2,500 balloon tires daily, which is said to represent about half of all balloon tires now being produced in the Akron district, and plans to increase its output to 5,000 daily in the near future.

The new schedule went into effect on February 1.

To Hold Safety Conference

The Midyear Safety Conference of the National Safety Council's Engineering Section, the Chicago Safety Council and the Western Society of Engineers will be held at the Morrison Hotel, in Chicago, February 19 and will include morning and afternoon sessions and a dinner meeting. Several phases of the subject of industrial health and medical work will be discussed with Dr. F. G. Barr of the National Cash Register Company and Dr. S. M. Francis of Buffalo as the principal speakers.

Consolidation of the American Society of Safety Engineers and the Engineering Section of the National Safety Council to be known as "The American Society of Safety Engineers, the Engineering Section of the National Safety Council," was announced at the banquet following the joint conference of the two organizations in New York last month.

The activities of the new organization will include monthly meetings in New York City and meetings in other cities, including Chicago, Cleveland and San Francisco, in addition to the sectional meetings at the Annual Safety Congress, participation in standardization and safety code work and research committees on special problems.

Big Gain for Standard Four

The annual Stockholders' Meeting of the Standard Four Tire Company, Keokuk, Ia., resulted in the re-election of officers and directors who served during the past year.

President J. B. Gabeline, in his report to stockholders, stated that there had been an increase of 64 per cent in the volume of business over 1922. That year, in turn, had shown an increase of 60 per cent over 1921, while 1921 was 54 per cent over 1920. The 1923 earnings were at the rate of 8 per cent on the preferred and 15 per cent on the common.

Firestone-Apsley Increases Schedule

Vice-president Lee A. Brown of the Firestone-Apsley Rubber Company of Hudson, Mass., who recently returned form an extended business trip throughout the West reports that the rubber trade has suffered generally because of the unseasonably mild weather, with the result that rubber footwear factories are all running on short time or not at all.

At the beginning of the year notices were posted at the Firestone-Apsley factory that a schedule of four days a week would be in operation until further notice. The schedule was increased to five days a week on January 17.

While present orders do not warrant such a move, the firm decided to make the change in order to do everything possible to help the employees, according to Mr. Brown, who stated that it was the desire of the company to keep its working organization intact. The company expects to find it necessary to store much of its products manufactured under the new schedule, and it is a question whether adequate storage space can be found.

Magnum Stock Issue

The Central Union Trust Company of New York has been appointed registrar of an issue of $700,000 Magnum Rubber Products Corporation 7 per cent cumulative, convertible preferred stock.

$92,302.62 Bid for Excel Plant

The Studebaker-Wulff Tire and Rubber Company of Marion, Ohio, has submitted a bid of $92,302.62 for the plant and equipment of the Excel Tire and Rubber Company of Wadsworth, Ohio. While there were a number of verbal offers and suggestions as to what might be paid by several firms there was but one strictly legal, written bid for the plant, and this was the Studebaker-Wulff bid, according to Receiver Lytle. It is understood that Wadsworth interests consider the offer an exceptionally good one and that the receiver has handled the matter in a satisfactory manner. Acceptance or rejection of the bid is now a matter of court decision.

Rubber Glove Standardization

Some confusion has arisen in the trade because the light-weight surgeons' gloves of some manufacturers are practically the same as other makers' medium-weight gloves, and some medium-weight gloves the same as others' heavy-weight types. To improve that condition and in the interest of standardization, the Glove Section of the Rubber Sundries Manufacturers Division of the Rubber Association is studying a schedule of uniform lengths and weights tentatively adopted at a meeting held in July. At that session, the Section also suggested that a uniform label or some other designation be used by the individual manufacturers to indicate light, medium, and heavy grades, conforming to the weights prescribed by the Section, thus obviating the possibility of any further confusion arising in the trade as to just what is and is not a light, medium, or heavy grade glove, as the case may be.

Copy for an educational booklet on the use of surgeons' gloves, which will also contain the standard weights and lengths, has been prepared, and the entire subject will be presented for final approval at an early date.

GOODRICH 1923 SALES AMOUNT TO $107,000,000

The sales of the B. F. Goodrich Company for the fiscal year ended December 31st, 1923, exceeded $107,000,000.00. After providing for all charges including depreciation and interest on borrowed money, the Net Earnings from operations for the year will be approximately $3,000,000.00

Current Assets of the Company on December 31st, 1923, will approximate $47,000,000.00, and the Current Liabilities, $12,725,000.00. Owing to the higher prices for raw materials prevailing during the last six months of last year and because of lower sales prices for the company's commodities, the net operating results for the last half of 1923 were disappointing.

At a meeting of the Board of Directors held on January 30th, 1924, a dividend of $1.75 was declared on the Preferred Stock payable April 1st, 1924, to Preferred Stockholders of record at the close of business on March 21st, 1924. The Directors also have approved the retirement of 11,880 shares of Preferred Stock in accordance with the provisions of the Charter.

Rutherford Off For Bermuda

Undoubtedly feeling the strain of the past month during which the annual meeting of the Rubber Association, the M.A.M.A., and the Goodrich Board of Directors were held, Mr. W. O. Rutherford, President of the R.A.A. and Goodrich Vice-President sailed for Bermuda on February 3 to be gone until February 21.

Regular Quarterly Kelly Dividend

C. P. Stewart-Sutherland, Secretary of the Kelly-Springfield Tire Company has announced that a quarterly dividend of $2.00 per share on the preferred stock of the company has been declared, payable February 15, 1924, to stockholders of record at the close of business February 1, 1924.

Somerset Makes Rubber Dust

The Somerset Rubber Reclaiming Works of East Millstone, N. J., which recently purchased the plant of the Aetna Rubber Company, New Brunswick, N. J., will shortly begin the manufacture of hard rubber dust for use in radio equipment, employing about 20 men at the new plant.

Goodyear Manager Resigns

F. C. Vandergrift, manager of engineering production at Goodyear, has resigned and becomes general manager of the Williams Foundry and Machine Co. Mr. Vandergrift has been with Goodyear for ten years.

Thomas Producing 500 Tires Daily

The Thomas Rubber Company, Wooster, Ohio, is now reported to be turning out about 500 tires a day, and employing approximately 80 men at the plant, which was recently purchased from the Kelly-Springfield Tire Co. after having been closed down for about a year. Thomas officials say the company has good orders on its books and expects to increase its payroll in the near future.

Western Rubber Elects

Harris Oppenheim was elected president of the Western Rubber Co., Goshen, Ind., at the recent annual meeting of Stockholders. B. F. Deahl was made vice-president, George R. Slate secretary and treasurer and Earl Bennett production manager. In addition to the above, Ray Deahl and Milton M. Latta were elected directors.

The vacancy caused by the resignation of C. E. Hyke, factory superintendent, who recently took a similar position with the Buckeye Rubber Products Co., Willoughby, Ohio, has not yet been filled.

Scott With Akron Laboratories

Winfield Scott, well known chemist, has become connected with the Rubber Service Laboratories Company, Akron, Ohio. Mr. Scott is the author of sevearl interesting papers on accelerators and a man with many years of experience, formerly being connected with the Goodyear and the Quaker City rubber Companies and later with the E. I. du-Pont de Nemours Company. His work at The Rubber Service Laboratories Co. will be along the line of research on organic accelerators.

New Registration of Trade Marks in Japan

The following memorandum has been received from the Division of Foreign Tariffs of the Department of Commerce and is repeated herein for the benefit of rubber companies interested in trade mark registration in Japan:

"Owing to the destruction of the Japanese Patent Office and most of its records in the recent earthquake, it will be necessary for all those holding patent rights or trade-mark registration in Japan to effect a new registration. This registration, however, will not be subject to any additional fee, excepting such incidental charge as may be necessary in effecting this registration."

A cable recently received from Acting Commercial Attache E. G. Babbitt at Tokyo, states that applications for registration must include details concerning numbers, dates and fees paid for previous applications and registrations.

This information is necessary in order that the Japanese Patent Office might renew its records. Applications for such registration should be filed by February 28, 1924.

Basement Showing Various Kinds and Sizes of Rubber Hose, Belting, Packing, etc.

Street Floor showing Display of Raincoats, Mats, Drug Sundries, etc.

Successful Rubber Store in Richmond

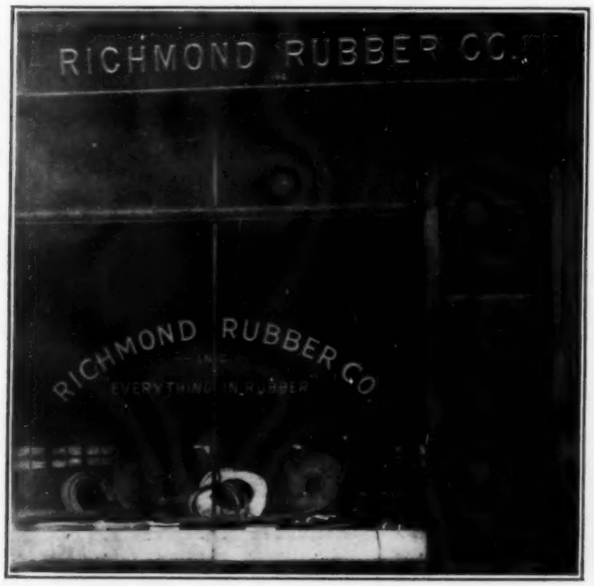
Carries Complete Line of Belting, Hose and Packing in Addition to Raincoats, Boots and Shoes, Drug Sundries, Mats, etc.

THE Richmond Rubber Company, 32 North Seventh street, Richmond, Va., said to be the only all-rubber supply house south of Baltimore, has for its slogan, "Everything in rubber," and a look at the stock which it carries is sufficient proof that it is thoroughly prepared to fill every need for articles and supplies of this material.

In the belting department, located in the basement, may be found from 25 to 30 rolls of high grade friction surface rubber belting, ranging in width from 1" 3-ply to 14" 8-ply. In the hose department are found the various kinds of rubber hose, such as steam, air, suction, mill, fire, water, radiator and spray hose in all sizes from ¼" up to and including 4" diameters. Complete lines of Anchor and Marco packings enables them to take care of all special requirements from the mills and factories for low pressure and high pressure steam piston packings, pump packings, boiler gaskets, etc.

The company carries a complete line of raincoats and also many other lines including rubber boots, hospital sheeting, rubber gloves, mats and matting, water bottles, syringes and the like. Conducting a wholesale business with the idea in mind of giving customers quick service, reasonable prices and rubber products that are unsurpassed in quality, the company has grown steadily in growth since it was organized in March, 1922, until now its selling organization covers the states of Virginia and North Carolina.

G. W. SUTTON *Spec. Representative* MISS M. T. O'NEALE *Secretary* E. R. PATTERSON *President*



It is distributor in Richmond territory for the Republic Rubber Company of Youngstown, Ohio, handling all mechanical goods turned out by that concern. Other manufacturing houses from which it gets supplies are the I. B. Kleinert Rubber Company, A. J. Tower Company, Anchor Packing Company, Miller Rubber Company and United States Rubber Company.

The company reports an especially good business in rubber belting the demand for which has been steadily on the increase during the last few years. Demand for rubber boots is also good, particularly in the Richmond district.

President of the company is E. R. Patterson, who is actively in charge of its affairs. Mr. Patterson entered the rubber business some years ago in Akron, Ohio, where he went with the B. F. Goodrich Company in 1914 and later became assistant manager of the Diamond Rubber Company's Philadelphia branch in charge of mechanical sales. After service in France, Mr. Patterson went to Richmond in 1919 with the Diamond company, representing it there until he organized the Richmond Rubber Company and became its head. Miss Mary T. O'Neale, secretary-treasurer of this company, is a business woman who was connected with Stuart Circle Hospital in Richmond in an executive capacity for eight years before assuming her present position. Personnel of the office staff also includes George W. Sutton, Joseph E. Galloway and J. B. Vaughan. There are five men on the road.

The Electrodeposition of Rubber Coatings

A Method By Which Rubber Coatings May Be Quickly, Inexpensively and Safely Deposited and Conditioned on Articles Having a Conducting Surface

A USEFUL process by means of which rubber coatings may be deposited on electroconducting surfaces in such a way as to constitute several improvements such as easy adaptability and execution and elimination of the fire hazard commonly attending the use of inflammable solvents, over former methods is the subject of an invention recently patented by Messrs. Samuel E. Sheppard and Leon W. Eberlin of Rochester, N. Y.

The following is a complete abstract of the patent, except for the omission of 35 claims which may be obtained on application to the United States Patent Office at Washington, D. C.

This invention relates to the deposition of rubber on to conducting surfaces of objects, and to the subsequent treatment of a deposited layer. One object of the invention is to provide a process by which rubber may be quickly and inexpensively deposited upon articles having a conducting surface. Another object of the invention is to provide a process by which the deposited rubber will have associated therewith conditioning agents by means of which said rubber can be conditioned after deposition. Another object of the invention is to provide a process of coating with rubber without the fire hazard attending the use of an inflammable solvent. Other objects will hereinafter appear.

In the accompanying drawing the single figure is a diagrammatic cross section of an apparatus employed in carrying out the process.

Rubber Emulsions Are Employed

We have discovered that useful coatings of rubber may be electro-deposited upon conducting surfaces of objects when electro-conducting rubber emulsions are employed. While this discovery can be utilized in a great many specific ways, we shall enumerate a few of them purely by way of illustration.

We may, for example, prepare an electro-conducting emulsion in the following manner. Broadly any solution of rubber in an organic solvent is distributed in an aqueous solution of soaps or equivalent emulgents, this mixture being emulsified by agitation, grinding or spraying. Thus we may take 1000 cc. of a 5% solution of rubber (say plantation sheet) in benzol, which is diluted with 1000 cc. of kerosene. To this we may add 500 cc. of sulfonated castor oil (so-called water-soluble oil), and this mixture is then stirred into 3000 cc. of an aqueous solution containing 150 grams of castile soap, which is the main emulsifying agent. The sulfonated castor oil is not indispensable, but is preferred as an auxiliary or intermediate emulsifier, which term includes any equivalent substance which similarly assists the main emulsifying agent in bringing and maintaining the rubber in the emulsified state.

Nor is the kerosene vital, but we prefer to use some such diluent, especially since its quantity is so small as not to appreciably increase the fire hazard during use.

One or more pigments, like lampblack, may be added if desired to the original rubber solution before emulsification. Vulcanizing agents, like sulphur, can also, if desired, be added to the rubber solution prior to emulsification, or they may be added in solution or in colloidal form to the emulsion, being properly stirred therein. Likewise an accelerator of vulcanization, such as aniline sulphate, may be added to the rubber solution prior to emulsification. The quantities of these various conditioning agents will vary from zero to the amount necessary to effect the change desired. For lightly colored coatings and for coatings in which only partial vulcanization is to be obtained only correspondingly small amounts of them need be incorporated in the emulsion. Since the proportions for effecting given results are substantially the same as those used heretofore, those skilled in this art will readily appreciate how to properly proportion the coatings.

Globules of Rubber

The emulsion probably comprises very small droplets or globules of rubber, each surrounded by a film of the emulsifying agent. While we do not wish to be restricted by a particular theory, we believe that each droplet carries its proportion of the conditioning agents, such as pigment, sulphur, aniline sulphate, and the like when such agent or agents are employed. It is certain that the droplets carry these substances with them into the coating in useful amounts. It will be noted that this emulsion, whether conditioning agents be added or not, is substantially free from material in a fermentable state. By fermentable state we mean one in which harmful decomposition through microorganisms may take place.

In the example given above the droplets in the emulsion act as if negatively charged and, therefore, travel toward the anode. The electro-conducting surface 1 to be plated is, therefore, connected at 2 to anode line 3 to form the anode and is immersed in the emulsion. A suitable cathode is also placed in contact with the emulsion. For instance, the latter may be contained in a metal vessel 5 which is connected in the circuit of cathode line 6. The current should be an effectively unidirectional one. It may be a direct current of constant value, or a direct current of pulsating character. In certain instances a considerably unbalanced alternating current might prove to be useful. We prefer, however, to use an ordinary direct current at a voltage of approximately 110, because this is conveniently obtainable. The deposition can take place slowly at much lower voltages and more speedily at higher voltages. But at the value of 110 volts, the deposition takes place satisfactorily with a flow of approximately one-half ampere per square inch of anode surface to be coated. Ordinarily we prefer to conduct the deposition at room temperature. If, however, the temperature rises, because of energy consumption, no harmful results will be noted. The time of plating or coating under these conditions is very short, being of the order of five minutes.

Coating is of Considerable Thickness

It might be expected that only very thin coatings could be deposited due to the electrode surface becoming coated with an insulator. Practical work shows that this is not the case. Probably the deposit contains mingled therein, at least temporarily, sufficient electrolyte to enable the current to be conducted and the deposit to build up until a useful thickness is obtained. The thickness of the coating within limits depends upon the composition of the emulsion, the voltage and current density employed and the time of depositing. The particles cohere together in the deposit; that is, they associate together with sufficient force to permit of the subsequent washing, vulcanizing and similar treatments.

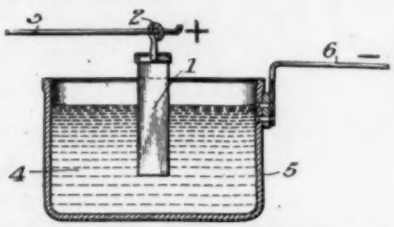
When the surface has a coating of the desired thickness, it may be removed from the bath and washed with water, preferably hot water. If the vulcanizing agent is in the deposited coating in a sufficient amount, the vulcanization of the coating can be carried on by packing in a vessel and heating in ac-

U. S. Patent No. 1,476,374. Samuel E. Sheppard and Leon W. Eberlin, assignors to Eastman Kodak Company, Rochester, New York.

cordance with the usual practice. If the coating does not contain the vulcanizer, or if it contains only an insufficient amount, then the packing in the vessel with a suitable separating powder will include a vulcanizing agent, as will be apparent to those skilled in the art. Any well known method of vulcanization can be employed. For instance, the coatings can be wholly or partially vulcanized by treatment in solutions of sulphur in sulphur dichloride. By a suitable manipulation the vulcanizing may be to any degree between almost no vulcanizing and the condition of hard rubber. It is sometimes useful to deposit the accelerator with the rubber but without any vulcanizer. The coating thus obtained vulcanizes readily by any usual method.

While the process is particularly adapted to the coating of entire metal articles by electro-deposition, it can be applied to any article having an electro- conducting surface on the whole or part of its entire periphery. Nor need the conducting surface be always metallic, for non-conducting objects, such as wood for example, may be made sufficiently conducting to serve as anodes for receiving the deposition by coating them superficially with a conducting graphite layer or by impregnating them with solutions of electrolytes. Moreover, finished rubber coatings may be separated from the object when the latter is designed or prepared for that purpose. In general a graphite coating will aid in such separation. In this way within limits articles may be molded by depositing the rubber upon a suitably shaped contacting surface, from which it is stripped after deposition and vulcanization, if desired. Hollow articles may be prepared by coating the rubber on forms of fusible material, such as wax coated with graphite or low fusible metals. The amount of soap or other emulsifying agent that remains in the deposit does not impair it, the final coating being for all ordinary purposes as useful as though prepared in other ways. Where the minimum amount of mineral matter is desired in the deposit, for instance when its electrical resistance is to be emphasized, the emulsifying agent may be in the form of a soap containing ammonium as the base. During vulcanization ammonia splits off and is driven away.

While we prefer to use a good castile soap as an emulsifier, we may employ any of the usual emulsifying agents, such as compounds of the several fatty acids, whether saturated or



Apparatus for Use in Electrodeposition of Rubber Coatings

unsaturated, with alkali metals or ammonium, sodium phenolate, cresolate, etc., (whether or not an excess of cresol or cresylic acid can be used). While an auxiliary or intermediate emulsifier, such as sulphonated castor oil, is not indispensable, it is very useful, being partly soluble in water and benzol, and thus facilitating the formation of the conducting emulsion.

During the deposition various plating expedients may be employed. Small metallic articles may, for example, be carried in a rotating foraminous conducting drum which acts as an electrode, this being analogous to well known depolarizing and burnishing practice. Such articles could, of course, be carried in an anode in the form of an eccentrically driven wire cage. The emulsion can be agitated or directed as a stream onto the anode surface to be coated, but this is ordinarily unnecessary. It is desirable that the surfaces to be coated with a permanent layer be clean. They can, for instance, be degreased by heat or suitable solvents.

Brazil Plans to Interest Rubber Capital

RUBBER cultivation on a scale that "will set a pace in the economic history of Brazil" is now possible through plans that have been perfected and adopted by the Brazilian Government, according to a letter received by the Brazilian-American Chamber of Commerce in New York City from Dr. J. C. Alves de Lima, Inspector of Brazilian Consulates of North and Central America and Asia.

The new plan, which is calculated to facilitate organization and consequently encourage investment of American and other capital in rubber and other products of the Amazon Valley calls for the substitution of a tax on the capital invested, bearing a fixed and determined percentage, for an export tax and thus "open the dikes of the Amazon Valley which have been closed economically up to now," writes Dr. de Lima. The new plan is followed by complementary measures such as the opportunity offered to American capitalists to acquire great tracts of public instead of private lands. At the same time the rubber states will be at liberty to import all kinds of machinery and tools, free of duty, for the exploitation of this industry.

The labor question which in the past has blocked the path of Brazil's return to her former prestige as the leading rubber producing country of the world has at last been solved by provision for the importation of Asiatic labor which is cheaper than native labor. Of this, Dr. de Lima says:

"When, for the first time, there was great agitation in this country and in Brazil regarding the restrictions on the output of rubber, created by the Stevenson law, I had the opportunity of meeting two of the most important owners of rubber plantations in the East Indies, and I gathered from them the information that, in their opinion,—'while Brazil offers many great possibilities as a great rubber country it is to be regretted that her native labor is too high for a profitable exploitation when compared with that of the East.' I am pleased to state that such a problem has been solved, American capitalists now being at liberty to import Asiatic labor for development of their plantations. As to what Chinese labor can accomplish, no nation can speak with more authority than the United States. People in California are indebted to the Chinese for the work they did in 1850 helping to build the railroad from San Francisco to Ogden.

"The plans suggested by the Brazilian Government have been submitted to the United States through our embassy in Washington and have met with full approval."

Dr. de Lima calls attention to the fact that there is now a commission of American Government experts in the Amazon Valley for the purpose of studying not only rubber, but vegetable oils, fine woods and many other articles which, so far, the United States has been importing from the East Indies. These, he points out, are "four times further from New York than from the mouth of the Amazon. With steamers now making the trip from New York to Rio de Janeiro in twelve days, the mouth of the Amazon will be easily reached in a week going down and in shorter time coming up due to the strong current of the Gulf Stream."

"It is not a dream for the people of this country to realize that within ten years, with the provisions enacted by the government of Brazil, a great transformation is bound to take place in the Valley of the Amazon. Para and Manaos, due to their topographical conditions will drain all the products of the valley and even a great share of Peru, Bolivia, Columbia and Venezuela. Immigration will then flow in such proportions as to stagger Brazilians themselves. Millions of rubber trees will be cultivated right from the mouth of the Amazon to those zones affording quick transportation. Rubber and agricultural cultivators shall thereafter work side by side because of their mutual dependence."

Features of 1923 World Tire Trade

By E. G. Holt

Assistant Chief, Rubber Division of Department of Commerce

Discontinuance of Retail Lists, Advent of Balloon Tires, Value of Foreign Exchange and Change to Cord Tires Feature Year

THE outstanding developments in the tire trade of the United States and Canada during 1923 were the discontinuance of retail tire price lists and the introduction of balloon tires. The balloon tire, although practically unknown to most American motorists, is now offered as original equipment by several automobile manufacturers, but at a slightly increased price for the car. The balloon tire is as yet too new to have become an important factor in export trade. The discontinuance of retail price lists has placed more responsibility on retail dealers, and in Canada, where list prices were followed quite closely, the retail dealers now have varying prices, resulting in somewhat disturbed conditions.

During the year there has been an increase in the use of straight-side tires abroad, but leading European manufacturers have not yet adopted straight-side tires and rims for their cars. However, the manufacture of straight-side rims has been started in France.

Two leading American tire manufacturing companies have extended their operations to Canadian branch factories during the year, and the British Dunlop Co. is now operating its American branch factory. Canadian tire exports have gained at the expense of the United States, preferential tariff rates in the British Empire making it more economical for American tire companies to supply certain export markets from their Canadian branch factories.

Tire Prices Low in Export Markets

Tire prices have been greatly reduced throughout export markets during 1923, the Michelin Co. usually initiating these reductions. This is a result of the declining exchange value of the French franc and of the low rate of the Italian lire. Michelin tires are manufactured in and exported from France and Italy. The declining value of the franc, which has not been accompanied by commensurately increased living costs, gives French tire manufacturers an advantage in labor costs so great as to render price competition from American firms very difficult, even though the prices in francs of imported raw cotton and crude rubber have increased proportionately to the decline in franc exchange. French competition has affected the trade of British manufacturers more severely than of American firms and has led to agitation for protection on behalf of the British tire industry.

It is of interest to note that at the annual meeting of the India Rubber, Gutta Percha, and Telegraph Works Co. (Ltd.) it was stated that the firm might find it necessary to confine tire manufacturing activities to their French plant if the present situation should continue unchanged. The British Dunlop has increased its volume of business in the British market through a combination of advertising propaganda and an improved product, but in the face of the prevailing low tire prices, the profits of the business can scarcely have been very great.

German Tire Manufacturers Suffering from Exchange

Germany offers a different example of the effect of exchange rates on trade. The steadily declining value of the German mark in the period following the war and up to June, 1923, gave German tire manufacturers an advantage similar to that now enjoyed by French firms. However, German firms were faced with the necessity first of supplying their domestic market, and, second, of improving the quality of their product, while the lack of established distribution channels rendered their position much less formidable than that now held by French exporters. With the collapse of the mark in July and August, it became necessary for German manufacturers to place domestic prices on a gold basis, which resulted in greatly reducing domestic trade and brought about unemployment in the industry. The difficulty of financing the purchase of raw materials in recent months has made it more difficult for German firms to maintain the position gained in export markets.

Japanese Market

The practical monopoly of the Japanese tire trade enjoyed by the Japanese Dunlop Co. and the Yokohama Rubber Co. at the outset of 1923 was invaded by an American firm which has enjoyed an increased business in Japan and China this year. The destruction of the factory of the Yokohama Rubber Co. during the earthquake cut off supplies from that source, and dealers are now being supplied by the parent concern, an American corporation.

Worldwide Change from Fabric to Cord Tires

Australian tire manufacturers are reported to have felt increased competition during the past year from imported American and European makes of tires. At the beginning of the year none of the Australian manufacturers were producing cord tires; at present Dunlop, Barnet-Glass, and Perdriau are all offering lines of cords. This is symbolic of the change from fabrics to cords that has taken place in the tire trade throughout the world in recent years. All of the leading British firms have changed to the production of cord tires during the past two years. French manufacturers were the first to adopt the change generally in tire production. During 1923, cord tires definitely superseded fabric tires in export markets, as was shown in the article published in *Commerce Reports* of October 22, 1923. That the general use of cord tires is reducing somewhat the tire consumption per car in foreign markets is indicated by import statistics of various countries, whose markets are wholly supplied by imported stocks.

Australian tire firms are endeavoring to secure increased tariff rates on tire imports and secure some share of the original tire equipment business for imported automobiles. Through original equipment American tire firms have often been enabled to display the merits of their products in foreign markets to advantage, and since American-made automobiles supply so large a share of the world's markets this has been a most desirable asset.

Trend Toward Change in Export Methods

The close competition in export trade has led certain American firms to initiate new export merchandising methods. The usual practice has been to handle a given territory through an exclusive agency with some local firm, except when a branch establishment was operated by the American company. The present trend is toward dealing direct with important retail tire dealers in foreign countries, on the basis of limited, rather than general, agencies.

American tire exporters are accepting the latter method because they find difficulty in quoting the very low prices required to attract distributors in the highly competitive market of the day; prices which they can quote with some possibility of a profit are, however, attractive to retail dealers who import direct. The gross margin of profit which the distributors would have to receive is divided between the American tire manufacturer and the foreign importer. The American exporter finds this method more cumbersome and less productive of real volume business, but it enables him to sell in markets from which his production cost would otherwise exclude him.

Safety Features of Electric Motor Drive For Rubber Mill Lines

By C. W. Drake
General Engineer, Westinghouse Electric and Manufacturing Co.

Improvement of Braking Methods by Use of Dynamic Control of Synchronous Motors

IN all lines of industry the question of guards and safety devices for machines to prevent injury of operators is receiving a great amount of attention, but in very few cases are the conditions as extreme as in the rubber industry. In few industries is as much power used in as small a space as in the milling of rubber, and even then it is seldom necessary to stop the entire machinery in a second or less as is necessary with rubber mills. The early drives for rubber mills were steam engines direct connected to the line shafts, or in some cases connected by belts, rope, chain or gears. Safety features were often entirely lacking, although in many cases spiral clutches for the individual mills were installed. It was entirely out of the question to stop the engine and flywheel quickly enough to prevent a serious accident, so that the next development of a safety nature was the installation of a clutch brake to disconnect the engine from the mill line and apply a brake to the shaft.

Clutch Brake in Common Use

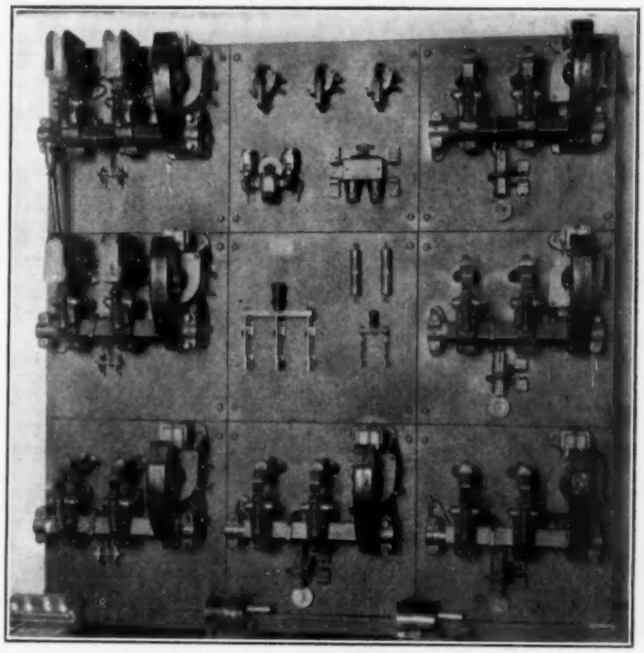
With the introduction of electric motor drive for mill lines similar types of clutch brakes have been commonly used as a means of obtaining a safety stop in case of emergency. Although installed primarily as a safety feature the clutch was ordinarily used in starting to connect the mills to the motor after it had been started without load. Regardless of this fact, however, wound rotor induction motors were almost universally used, although in some of the later installations the control of the motor and the clutch brake were so interlocked that the clutch was closed before starting the motor. This saved unnecessary wear on the clutch with a consequent decrease in attention and maintenance required. Wound rotor motors of similar size and characteristics have been used in steel mills for driving large rolls, also on hoists and in both cases plugging control has been used for many years as a means of bringing the machinery to a quick stop. Plugging is obtained by connecting the motor primary to the line with one phase reversed and with sufficient resistance in the rotor circuit to limit the line current to any desired value.

Advantages of Plugging Control

Since wound rotor motors have been starting the mill lines without clutches it was a natural development to utilize plugging control for stopping and thus eliminate the mechanical brake also. Braking of this type is applied through the flexible medium of magnetic flux acting through the motor air gap, and consequently the machinery is not subjected to the shock and jar that may obtain from mechanical brakes. Besides this the braking is more uniform, since it does not depend upon friction devices which require frequent attention to obtain best results. Tests on installations using plugging control for braking have proven that as quick a stop can be obtained as would a mechanical brake in good condition, and in obtaining such a stop the current drawn from the line never exceeds that taken during starting or running conditions. Consequently there is nothing due to the method of braking, which would in any way tend to open the line breakers or interrupt the power supply. Several years experience with this method of stopping have proven its reliability, and those in closest touch with the operation of the machines are its strongest advocates.

Development of Dynamic Braking

Of more recent application but just as old in theory is the use of dynamic braking for synchronous motors driving rubber mill lines. Synchronous motors were not formerly used to any extent in the rubber industry for two reasons; first, because the question of power factor correction was not of vital interest, and second because it was not considered that synchronous motors possessed sufficient starting torque for mill line drives. The improvement of power factor to give decreased line drop, increased generating capacity, or to meet central station requirements, has brought the synchronous motor into the lime light and the synchronous motors now on the market have far superior characteristics to those of ten years ago. They may not quite equal the starting conditions of wound rotor motors, but they do have sufficient torque to start the mills when stopped under normally loaded conditions as might occur due to voltage failure, etc., and with the reversing feature it is possible to back up and cut out the rubber so that starting even under the worst conditions seldom requires opening a mill.



Full Automatic Plugging Controller For 250 Horsepower, 440 Volt Wound Rotor Induction Motor Driving Mill Line

Advantage with Synchronous Motor

The synchronous motor then has the desired power factor characteristics, a satisfactory starting torque and the only other question was that of braking. Dynamic braking of a synchronous motor is exactly comparable with that of a direct current motor and dynamic braking of direct current motors has been used about as long as those motors have been in general use. In both cases, that is with direct current motors and with synchronous motors, the armature is disconnected from the source of power supply and is short circuited through

(Continued on Page 344)

EDITOR'S REVIEW DESK

Trade Catalogs **Books** **Bulletins**

RUBBER AND GUTTA PERCHA INJECTIONS by Charles Conrad Miller, M.D. 99 pp. Oak Printing and Publishing Co., Chicago, Ill. ($1.75)

Not many persons know that crude rubber and gutta percha are being used in plastic surgery and Dr. Miller's book should prove a valuable addition to this field of science. The author describes the kinds of rubber and gutta percha best adapted to this kind of work and describes, with illustrations, the method of preparation for injection purposes. The proper way to inject and conditions to be observed are set forth in following chapters. Rubber and gutta percha have been found to give better results and also to be much safer than paraffine.

* * *

THE MARKET OF BRITISH MALAYA. Forthcoming publication by P. W. Ward, late Canadian Trade Commissioner in Singapore. Supplement to the Commercial Intelligence Journal, published by the Department of Trade and Commerce, Ottawa, Canada.

* * *

THE RUBBER CULTIVATION ON THE EAST COAST OF SUMATRA. By J. H. Crookweit, published by Drukkerij En Uitgeverij J. H. de Bussy, Amsterdam, Holland. Illustrated prospectus containing 87 photographs with descriptions showing the rubber industry on the East coast of Sumatra in its entirety.

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DRUG AND CHEMICAL MARKETS BUYERS, GUIDE BOOK, 1924 Edition. Compiled and published by Drug and Chemical Markets, New York City. 680 pp. with index. Copies free to subscribers.

The Guide Book consists of three parts, the first of which is a directory of the drug chemical and allied industries of the United States, the second and directory of products, chemicals, drugs, etc. and the third a directory of price and market statistics and trade information.

* * *

HELPING THE EXPORTER, (A Service Story Step by Step). Issued by the Departemnt of Commerce. 50 pp.

Contains advice to the exporter on how to go about securing department information on markets for his products abroad. The first part contains correspondence of a hypothetical case illustrating the method step by step; second part devoted to Organization and Service of Bureau.

* * *

A.S.T.M. SPECIFICATIONS AND METHODS OF TEST FOR TEXTILE MATERIALS. Special Pamphlet (80 pp.) issued by the American Society for Testing Materials.

The pamphlet contains specifications with reports and papers relating thereto. It is published for the purpose of presenting in a single cover data that the Society believes to be of much importance to all who deal with textile materials. Single copies may be obtained from the Society headquarters, 1315 Spruce St., Philadelphia, Pa., for $1.00, lots of 25 to 99 for $.50, lots of 100 to 249 for $.40 and 250 and more for $.30.

* * *

REVUE GENERAL DES COLLOIDES ET DE LEURS APPLICATIONS INDUSTRIELLES, (General Review of Colloids and of Their Application in Industry). New publication issued by Dunod, Paris, 34 pp. Edited by MM. Paul Bary, chief of the research laboratory of la Compagnie pour la Fabrication des Compteurs, MM. J. Duclaux, chief of the laboratory of the Pasteur Institute, and others.

Two interesting articles are published in the first issue of this paper. The first is on the Explanation of the Colloidal Appearance of Proteins, by Jacques Loeb of the Rockefeller Institute for Medical Research, and the second on the Thickening of Paints and Varnishes, by Ch. Coffignier, Consulting Engineer.

THE EVOLUTION OF THE WORLD RUBBER SITUATION by H. Stuart Hotchkiss, reprint in booklet form of an article which appeared in the *Harvard Business Review* of January, 1924. In this article, Mr. Hotchkiss briefly reviews the early history of the rubber industry and quotes from reports the production and consumption of rubber from 1826 to date. He then reviews in detail the past and present methods used in the primary and secondary crude rubber markets giving the respective positions taken in every transaction by the importer, dealer and broker in New York and London. The last part of the article takes up the world's rubber position of today with the events leading up to the Stevenson Restriction Plan. The writer believes that restriction is a satisfactory safeguard against a possible shortage and that attempts to grow rubber in America or in any of its possessions may prove dangerous and lead to heavy financial losses on the part of those who are not thoroughly informed regarding the difficulties of accomplishment.

Mr. Hotchkiss, in touching on the success of the present control of crude rubber by British and Dutch interests, states that except for military considerations, there does not appear to be any sound reason why the plantation industry should not be allowed to develop along the lines it has followed in the past. However, the following interesting suggestion is made to insure an adequate supply of crude rubber in a military contingency: "Create a revolving rubber reserve in the United States, to be held either by manufacturers under Government supervision, or by the Government itself. If this stock were equivalent to a year's supply, the carrying charges would not be excessively heavy, crediting against it the normal stocks always on hand in the country. In case of an emergency the Government could immediately place an embargo on all uses of rubber for luxury purposes, thereby greatly extending the position. This, together with an added use of reclaimed rubber, would tide the country over for a very considerable period."

* * *

MARKETING OF PLANTATION RUBBER, by J. J. Blandin, Special Agent of Rubber Section of Department of Commerce; Trade Information Bulletin No. 180, January 24, 1924. First of a series of publications on crude rubber to be issued under the direction of H. N. Whitford, Chief, as a result of the extensive investigation of the 'crude-rubber monopoly' authorized by the Sixty-seventh Congress. This pamphlet supplements two previously issued Trade Information Bulletins, one by Trade Commissioner John A. Fowler, entitled "Plantation Rubber in the Netherlands East Indies and British Malaya" (No. 27), and the other by the rubber division, "Rubber Situation in the British Colonies and Protectorates."

The present report covers only the marketing of crude rubber produced on plantations in the Far East—that is, in southeastern Asia and adjacent islands—but since 95% of the rubber produced in 1922 came from plantations of that region, practically all the methods used today in marketing crude rubber are necessarily given attention in this complete bulletin.

There are two general types of rubber plantations in the Far East, large areas financed and conducted by Europeans and smaller areas in the hands of the Asiatic or native population. American rubber manufacturers may buy their supplies of rubber by different methods. Those who use small quantities generally obtain their supplies through New York dealers. The large users of crude rubber in the United States, besides buying from dealers, usually have agents located in the principal primary markets of the Far East and in London and Amsterdam to act as direct buyers of a large portion of the rubber that they need. All of the transactions involved in using either of these methods are discussed in this report.

RUBBER STATISTICS

Import **Production** **Export**

Imports of Crude Rubber, Gutta Percha, and Substitutes Therefor, into the United States During the Month of December, 1923

CRUDE RUBBER: *From*—	*Pounds*	*Dollars*
Belgium	22,351	5,269
France	233,527	61,533
Germany	312,362	80,569
Netherlands	1,466,786	390,896
Spain	4,180	1,013
England	4,476,466	1,159,947
Quebec and Ontario	9,133	3,475
Costa Rica	1,684	694
Nicaragua	1,200	122
Mexico	8,272	1,961
Bolivia	11,002	6,803
Brazil	2,771,657	539,875
Chile	4,713	1,427
Colombia	127,643	23,844
Ecuador	54,783	9,091
Dutch Guiana	5,855	1,951
Peru	327,381	63,807
Uruguay	38,529	23,894
Armenia and Kurdistan	48,000	14,400
British India	133,485	37,596
Ceylon	3,590,692	944,446
Straits Settlements	40,455,672	10,636,157
Java and Madura	4,149,852	1,057,315
Other Dutch East Indies	8,246,099	1,900,365
Japan	17,200	2,888
Philippine Islands	78,402	21,993
Crude Rubber—TOTAL	66,596,926 (29,731 long tons)	16,991,331
Jelutong or pontianack	466,338	36,925
Balata	163,802	96,929
Gutta-Percha	181,722	28,444
Other crude (including Gunyule) scrap and reclaimed	774,439	54,434
Total unmanufactured (including Crude Rubber Total)	68,183,227	17,208,063

Domestic Exports of Rubber Reclaimed, Scrap and Old, from the United States During December, 1923, by Countries

	RECLAIMED		SCRAP AND OLD	
	Pounds	*Dollars*	*Pounds*	*Dollars*
Belgium	....	....	28,676	1,303
France	....	....	128,158	5,983
Germany	....	....	98,795	2,034
Italy	....	....	32,019	1,515
Netherlands	....	....	29,657	843
Spain	....	....	306,895	18,606
Sweden	11,200	1,467	....	....
England	8,389	1,173	19,982	666
Scotland	6,057	605	82,145	3,696
Canada—				
Maritime Provinces	....	....	765	20
Quebec and Ontario	326,255	40,727	75,552	1,377
China	....	....	41,946	875
Japan	11,380	700	69,028	742
Total	363,281	44,672	913,618	37,660

Shipments of Rubber Manufactures from the United States to Non-Contiguous Territories During the Month of December, 1923

	ALASKA		HAWAII		PORTO RICO	
	Quantity	*Dollars*	*Quantity*	*Dollars*	*Quantity*	*Dollars*
Boots and Shoes (Pairs)	3,852	$7,704	2,650	$4,057	59,152	$40,341
Druggists' rubber sundries (Pounds)	2	3	526	667	1,766	1,373
Automobile tires (Number)	72	571	8,492	59,414	6,951	60,512
Other tires (Number)	4	95	273	287	434	496
Belting hose, and packing (Pounds)	3,822	2,112	18,070	9,027	12,294	5,980
Other rubber manufacturers (Pound)	1,372	290	20,195	5,557	12,372	4,996
Coated and waterproofed goods (Pounds)	6,498	3,672	3,770	2,623	3,758	2,808

Rubber Exports for December, and Totals for 1923

Compiled by the Department of Commerce

RUBBER BELTING, HOSE, PACKING, AND THREAD.

	Rubber Belting		Rubber Hose		Rubber Packing		Rubber Thread	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
Total, December	372,547	219,670	308,770	126,461	122,585	58,040	38,437	40,490
TOTAL, 1923	3,548,468	2,032,310	4,455,502	1,734,751	1,564,492	731,306	895,416	916,693

PNEUMATIC CASINGS AND SOLID TIRES.

	Pneumatic Casings				Solid Tires			
	For automobiles		Other		Automobiles		Other	
	Number	Dollars	Number	Dollars	Number	Dollars	Pounds	Dollars
Total, December	61,191	719,132	1,421	3,748	5,983	150,241	76,277	17,782
TOTAL, 1923	1,362,741	15,293,103	72,391	269,858	96,849	2,376,280	940,182	229,226

RUBBER FOOTWEAR AND SOLES AND HEELS.

	Boots		Shoes		Canvas shoes with rubber soles		Rubber soles and heels	
	Pairs	Dollars	Pairs	Dollars	Pairs	Dollars	Pounds	Dollars
Total, December	40,603	86,650	77,507	67,236	143,916	118,106	146,493	51,598
TOTAL, 1923	395,023	947,536	1,083,625	903,379	3,791,018	2,920,412	1,902,502	678,798

HARD RUBBER GOODS AND DRUGGISTS' RUBBER SUNDRIES.

	Druggists' Rubber Sundries		Battery jars and Accessories		Other Electrical Supplies		Other hard rubber goods	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
Total, December	49,576	54,168	95,525	21,253	7,980	4,063	26,814	33,832
TOTAL, 1923	787,590	774,443	425,007	127,048	306,242	103,358	462,547	416,240

PNEUMATIC TUBES, REPAIR MATERIAL, MANUFACTURES OF RUBBER NOT ELSEWHERE SPECIFIED

	Pneumatic Tubes				Tire Repair Material		Rubber Manufactures	
	Automobiles		Other					
	Number	Dollars	Number	Dollars	Pounds	Dollars	Pounds	Dollars
Total, December	54,632	91,151	4,327	3,631	90,623	40,966	449,132	247,942
TOTAL, 1923	1,016,384	1,740,329	57,885	53,055	831,371	358,902	5,706,326	3,276,253

COATED OR WATERPROOFED FABRICS.

	Oilcloth (not floors)		Coated or Artificial Leather		Waterproofed Autocloth		Waterproofed Clothing	
	Sq. yards	Dollars	Sq. yards	Dollars	Sq. yards	Dollars	Pounds	Dollars
Total, December	639,180	144,373	258,842	197,755	155,628	94,875	25,098	22,237
TOTAL, 1923	.....	.....	.....	.....	.....	.....	745,558	646,966

Report of Rims Approved and Rejected by Tire and Rim Association of America, Inc., for Years 1919, 1920, 1921, 1922 and 1923

	1919	1920	1921	1922	1923
Total Number Rims Inspected	15,057,908	15,426,320	10,860,046	17,789,381	25,420,287
Total Number Rims Approved	12,485,211	12,860,724	9,175,039	16,281,583	23,141,962
Number Rims Rejected	2,572,697	2,565,596	1,685,007	1,507,798	2,278,325

Rims approved and branded by the Association are classified in sizes as follows:

SIZE	1919 Number	1919 Pct.	1920 Number	1920 Pct.	1921 Number	1921 Pct.	1922 Number	1922 Pct.	1923 Number	1923 Pct.
26 x 2½	....	....	1,739	0.0	1,157	0.0	none	....	none	....
26 x 3 Cl.	29,088	0.3	69,572	0.5	12,629	0.1	16,730	0.1	36,863	0.1
28 x 3 Cl.	140,035	1.1	119,317	0.9	26,902	0.3	61,142	0.3	73,680	0.3
30 x 3 Cl.	1,665,687	13.3	1,365,757	10.6	532,034	5.8	782,816	4.9	1,009,856	4.4
27 x 3½ SS	....	....	....	....	....	....	....	....	33,381	0.1
30 x 3½ Cl.	4,591,228	37.8	5,634,663	43.8	5,588,656	60.9	8,334,385	51.2	11,204,235	48.4
30 x 3½ SS	....	....	....	....	172,238	1.8	1,632,809	10.0	3,403,190	14.7
32 x 3½	1,184,950	9.5	1,183,251	9.2	323,784	3.5	186,937	1.1	143,575	0.6
28 x 4 SS	....	....	....	....	....	....	....	....	17,048	0.1
28 x 4 Ap	....	....	....	....	....	....	....	....	703	0.0
31 x 4 Cl.	....	....	....	....	....	....	....	....	1,594,862	6.9
31 x 4 SS	....	....	....	....	....	....	4,319	0.0	109,705	0.5
32 x 4	1,523,692	12.2	1,311,244	10.2	1,261,475	13.7	3,041,559	18.7	3,014,093	13.0
33 x 4	1,148,629	9.2	1,041,652	8.2	487,206	5.3	411,621	2.5	211,437	1.0
34 x 4	268,290	2.1	127,584	1.0	32,041	0.3	59,696	0.4	20,438	0.1
29 x 4½	....	....	....	....	....	....	5,410	0.0	67,919	0.3
32 x 4½	314,984	2.5	642,473	5.0	326,412	3.5	1,065,220	6.6	1,438,610	6.2
33 x 4½	....	....	874	0.0	....	....	79,787	0.5	80,892	0.4
34 x 4½	929,019	7.4	878,097	6.8	346,254	3.7	458,478	2.8	466,438	2.1
36 x 4½	46,292	0.4	38,601	0.3	8,323	0.1	11,265	0.1	4,559	0.0
30 x 5	....	....	....	....	....	....	508	0.0	5,548	0.0
34 x 5	264	0.0	43,463	0.3	48,637	0.5	112,234	0.6	141,278	0.6
32 x 6	....	....	....	....	....	....	676	0.0	5,597	0.0
36 x 6	459,353	3.7	123,659	1.0	2,928	0.0	11,906	0.1	22,750	0.1
34 x 7	....	....	....	....	....	....	282	0.0	2,084	0.0
38 x 7	30,784	0.3	48,603	0.4	1,151	0.0	8,102	0.1	5,407	0.0
36 x 8	....	....	....	....	....	....	353	0.0	3,019	0.0
40 x 8	19,544	0.2	38,182	0.3	1,127	0.0	4,795	0.0	6,442	0.0
44 x 10	4,375	0.0	2,431	0.0	190	0.0	....	....	none	....
Millimeter	128,997	1.0	191,394	1.5	1,895	0.0	6,755	0.0	909	0.0
Totals	12,485,211	....	12,860,724	....	9,175,039	....	16,281,583	....	23,141,962	....

KEY:—
"Ap" Airplane
"SS" Straightside
"Cl" Clincher

NOTE:—
Supervisory inspection on all straightside rims started June 1, 1922. Since that date all rejections are clincher rims.

Rims in following sizes were made experimentally in 1923

29 x 3	645	30 x 4½	478
28 x 3½	14,070	31 x 4½	67
29 x 4	2,126	31 x 5	23
30 x 4	41		

Imports of Crude Rubber into the United States During 1923

	Quantity *Long Tons*	Value *Dollars*
January	35,609	$ 14,310,825.
February	26,955	13,150,823.
March	30,929	19,041,565.
April	31,062	21,925,814.
May	35,762	24,953,222.
June	35,352	23,941,937.
July	19,926	13,008,840.
August	19,081	11,612,618.
September	11,564	6,509,319.
October	17,622	10,375,347.
November	15,546	9,236,078.
December	29,731	16,991,331.
Total*	309,139	$185,057,719.

Year	Quantity *(Long Tons)*	Value *(Dollars)*
1919	239,259	$215,820,113.
1920	252,922	242,795,773.
1921	185,394	73,752,677.
1922	301,076	101,843,188.

*These figures do not include Guayule or Jelutong.
Figures subject to revision.
SOURCE: "Monthly Summary of Foreign Commerce of the United States."

Report of Rims Inspected and Approved During December, 1923

SIZE	NUMBER	PCT.
26 x 3	3,700	0.2
28 x 3	4,780	0.3
29 x 3 SS	645	0.0
30 x 3	107,738	6.1
27 x 3½ SS	101	0.0
28 x 3½ SS	13,977	0.8
30 x 3½ Cl.	886,945	50.4
30 x 3½ SS	277,809	15.8
32 x 3½	1,246	0.0
28 x 4	7,654	0.5
31 x 4 Cl.	156,839	8.9
31 x 4 SS	8,016	0.5
32 x 4	163,523	9.3
33 x 4	5,396	0.3
34 x 4	180	0.0
29 x 4½	4,776	0.3
30 x 4½	433	0.0
31 x 4½	25	0.0
32 x 4½	73,978	4.3
34 x 4½	32,301	1.8
36 x 4½	308	0.0
30 x 5	1,066	0.1
31 x 5	23	0.0
34 x 5	6,325	0.4
32 x 6	236	0.0
36 x 6	540	0.0
34 x 7	402	0.0
38 x 7	402	0.0
36 x 8	687	0.0
millimeters	182	0.0
TOTAL	1,760,233	100.0

(See Total Figures for 1923 elsewhere on this page)

Safety Features of Electric Motor Drive

(Continued from Page 341)

a resistance while the field circuit is still maintained. In the case of the direct current motor a direct current flows through the braking resistance, while with the synchronous motor a 3 phase alternating current flows through the resistance but braking torque is developed in each case. The advantage, if any, would appear to be with the synchronous motor, since in this braking circuit there is no commutator or brushes so that as high a current value as desired could be used without any danger of sparking or flashing. Tests have proven, however, that it is unnecessary to utilize any higher current values than those occurring during running conditions. The general advantages of this type of braking are the same as those of the plugging system and the motors and mills are brought to a quick stop without any jar or vibration. Various modifications of the controllers are possible to suit local conditions of voltage or installation and still retain the same safety features. With either type of braking the time of stopping or roll travel can be adjusted by means of the braking resistance but even the normal adjustment is well within the requirements of the proposed Safety Code of the state of New Jersey.

MARKETS

Cottons and Fabrics

NEW YORK, FEBRUARY 1, 1924

The tendency of the raw cotton market has continued to reflect trade uncertainty regarding the outlook but governing conditions have been somewhat different from those noted heretofore. The question of the probable size of the old crop has lost much of its moment, operators generally feeling it will not be far away from the last Government estimate of 10,081,000 bales. The most important influences of the past few weeks have been the steadily decreasing trade demand due to curtailment in the mill centers and the situation with regard to planting of the new crop. These are factors that are expected to determine the future action of prices, the question as to the distribution of remaining old crop supplies hinging largely upon the state of trade in the goods market, while the new crop depends upon weather conditions between now and the end of May.

Trade Buying Curtailed

Concerning the former there does not seem to be much ground for the belief that American consumption, as a whole, will show any decided decline for the year except as it may be caused by increasing difficulty in obtaining raw material, but business in goods has been generally disappointing so far this year and this fact has been the reason for much of the liquidation of raw cotton futures. Mills now are operating on much lower schedules than a month ago and in some sections production is not half of capacity.

Late Crop Predicted

As to the latter reports have been conflicting, though of late there has been a good deal of rainy weather over the belt which has tended to retard ploughing preparatory to planting. Some authorities express themselves of the opinion that the crop will get a late start this season which means another short crop as this will give the boll weevil a good start, while others of equal expertness aver there is sufficient time yet to get the crop on its way so that it will be able to resist the encroachments of the weevil successfully.

While there have been some rather sharp movements of prices within the past two weeks none have been as extensive as the fluctuations which carried the market into new high ground last November and subsequently brought it down more than 4 cents a pound. Moreover, there has been no sustained movement in either direction so that in the net the market shows but little change from the levels quoted in our last report which was of January 17. On the old crop months the market shows losses of 25 to 46 points while on the new active months the decline ranges from 20 to 50 points. Day to day operations on the principal cotton exchanges of this country and Great Britain have been more or less restricted indicating a much more conservative attitude on the part of both buyers and sellers than was the case a month or two ago. Contracts, however, have been more severely liquidated than the spot markets and at one time the May position in New York sold below spots at several points.

Liverpool Steadier

Liverpool has demonstrated relatively more steadiness than New York, despite continued wild exchange fluctuations and the change of Government that has occurred in the interim. The English market has been under the stimulus of comparatively better trade demand than the American, operations in the Manchester district being fairly well maintained as against the cut-down here.

Ginnings Show Gain

The Government report on cotton ginning prior to January 16 amounted to 9,946,463 bales, including 235,891 round bales, counted as half bales; 20,181 bales of American-Egyptian and 781 bales of Sea Island. This compares with 9,648,261 bales for the same period the year before, including 168,248 round bales, counted as half bales; 30,967 bales of America-Egyptian and 5,074 of Sea Island. The revised total of cotton ginned this season to January 1 was announced as 9,811,038 bales with 15,200 ginneries being operated prior to that date.

Exports of raw cotton during the year 1923 resulted in a decline of 834,000 bales in volume but an increase of more than $133,000,000 in value over the totals for 1922, according to the December report of domestic exports of cotton and cotton cloths issued by the Department of Commerce. Total raw cotton exports for 1923 were 5.279,000 bales as against 6,113,000 bales in 1922. Shipments of cotton manufactures for the year reflected a decline of about $700,000 in value, while the total exports of cotton cloths fell off both in volume and value.

The range of prices:

	Open.	High.	Low.	Jan. 30 Close.	Jan. 16 Close
Mar.	32.98	33.28	32.85	33.07@33.09	33.53—46
May	33.28	33.57	33.19	33.38@33.40	33.73—25
June	.....	.....	.....	33.00@.....	33.32—32
July	32.04	32.33	31.91	32.10@32.14	32.60—50
Oct.	27.87	28.07	27.80	27.90@.....	28.10—20
Dec.	27.38	27.38	27.38	27.43@.....	27.63—20

EXTRA STAPLE COTTON

The features of extra staples in the New Bedford market at this writing is the quiet nature of trading conditions with whatever activity shown being the result of heavy rejections. Selected staples are in demand and the supply is relatively in better demand than is the case with the common short staples. Such trades as have been made were for small quantities below current quotations. Prices are little changed from our last report but with a tendency shown to offer less for sale, quotations mean little.

Prices on extra staple cotton, strict middling in grade and color, f.o.b., New Bedford, were quoted today as follows:

1 1-8 inch, 36½ @ 37 cents.
1 3-16 inch, 37 @ 37½ cents.
1 1-4 inch, 38 @ 39 cents.
1 5-16 inch, 39 cents upward.

TIRE FABRICS

Tire manufacturers are moving cautiously in their fabric commitments with the result that most of the business being done is for small spot shipments. Some fabric mills are disposing of stocks on hand, their plants being practically closed down. Some few favored mills are running two shifts for those tire manufacturers who have orders for the second quarter of 1924. Mills believe prices are too low and they are not, therefore, disposed to seek any great amount of business. Something is bound to break soon. Prices are somewhat lower than those given in our last report.

CORD FABRICS

Combed Sakellarides		Nominal	
Combed Peeler	lb.	Nominal	
Carded Peeler	lb.	.63 @	.65
Combed Egyptian uppers	lb.	Nominal	
Carded Egyptian uppers	lb.	.67 @	.70

SQUARE WOVEN

17¼-ounce Egyptian uppers, combed	lb.	Nominal	
17¼-ounce Egyptian uppers, carded	lb.	.63 @	.66
17¼-ounce Sakellarides, combed	lb.	Nominal	
17¼-ounce Peeler, combed	lb.	Nominal	
17¼-ounce Peeler, carded	lb.	.61 @	.64

SHEETINGS

40-inch	2.50-yard	yd.	.18 @	.18¼
40-inch	2.85-yard	yd.	.15½ @	.15¾
40-inch	3.15-yard	yd.	.16½ @	—
40-inch	3.60-yard	yd.	.14 @	.14½
40-inch	3.75-yard	yd.	.13¼ @	.13½
40-inch	4.25-yard	yd.	.11 @	.11¼

DUCKS

Belting	lb.	.55 @	.57
Hose	lb.	.55 @	.57
Enameling	lb.	.55 @	.63
Shoe Ducks	lb.	.55 @	.58
Single filling	lb.	.24½ @	.27
Double filling	lb.	.27 @	.29

BURLAPS (Carload Lots)

7½-ounce	40-inch	5.55 @	—
8 -ounce	40-inch	5.60 @	5.65
10 -ounce	40-inch	7.60 @	7.85
10½-ounce	40-inch	7.65 @	8.05

DRILLS

37-inch	2.75-yard	yd.	.16 @	.16½
37-inch	3.00-yard	yd.	.15¾ @	.16
37-inch	3.25-yard	yd.	.14¾ @	.15
37-inch	3.50-yard	yd.	.14½ @	.14¾
37-inch	3.95-yard	yd.	.12¼ @	.12½

OSNABURGS

30-inch	7-ounce	.16½ @	.17
40-inch	7-ounce	.17 @	.17½

Chemicals and Compounding Ingredients

THE INDUSTRIAL CHEMICAL MARKET—NEW YORK, February 1, 1924—Conditions in the general list of industrial chemicals have not undergone great change since our last report. There has been a good movement in the majority of items, mainly on contracts which were placed earlier in the year or before the close of 1923. New spot buying has been rather inclined to drag here and there though occasional manifestations of substantial buying power have been sufficient to keep trade interest fresh. Perhaps the outstanding phase of the past two weeks' trading has been the development of firmness in imported chemicals. The potash salts and carbonates have scored moderate advances and some fairly good buying has been noted. The rubber industry is reported to be buying a good volume of chemicals and present indications point to larger takings this year by rubber manufacturers than ever before in the history of the industry. Prices of domestic products are holding steady with few exceptions. Strength of the imported list has been a boon in this respect.

ACCELERATORS

Organic

Aldehyde ammonia, crystals	lb.	$ .90	@ .95
Aniline oil, drums	lb.	.17	@ .17½
Diphenylguanidine	lb.	1.10	@ 1.15
Excellerex,	lb.	.45	@ .50
Formaldehyde-Aniline	lb.	.50	@ —
Hexamethylene-tetramine	lb.	.75	@ .80
Paraphenylenediamine	lb.	1.35	@ 1.40
Super-Sulphur No. 1	lb.	.50	@ .60
Super-Sulphur No. 2	lb.	.25	@ .35
Tetramethyl— Thiuramdisulphide	lb.	6.00	@ —
Thiocarbanilide, kegs	lb.	.35	@ .40
Vulcocene	lb.	.35	@ —

Inorganic

Lead, sublimed blue	lb.	.09¼	@ —
Lead, white	lb.	.09	@ .09½
Litharge, domestic	lb.	10.65	@14.25
Lime, Superfine	lb.	.01½	@ .03½
Magnesia, calcined, light,	lb.	.23	@ .24
extra light	lb.	.45	@ .60
heavy	lb.	.04½	@ .06

COLORS

Blacks

Arrow, "Aerfloted"	lb.	.09	@ .10
Bone Black	lb.	.05½	@ .07½
Carbon "	lb.	.07	@ .09
Drop "	lb.	.07½	@ .10
Ivory "	lb.	.15	@ .45
Lamp "	lb.	.12	@ .40
Micronex	lb.	.09	@ .14

Blues

Cobalt	lb.	.21	@ .23½
Prussian		.40	@ .43
Ultramarine	lb.	.08	@ .35

Browns

Iron oxide	lb.	.04½	@ .05½
Sienna, Italian,	lb.	.06	@ .14½
Umber, Turkey,	lb.	.04	@ —
Vandyke, domestic	lb.	.03½	@ .04

Greens

Chrome, light	lb.	.28	@ .31
medium	lb.	.30	@ .35
dark	lb.	.32	@ .43
commercial	lb.	.12	@ —

Reds

Antimony crimson, 15/17% F.S.	lb.	.39	@ .41
sulphur free	lb.	.39	@ .50
golden, 15/17% F.S.	lb.	.20	@ .22
calcium and sulphur free	lb.	.40	@ —
red sulphuret 15/17% F.S.	lb.	.15	@ .16
Indian, English	lb.	.11	@ .13
Para toner	cwt.	1.00	@ 1.10
commercial		.16	@ .18
Red Oxide, reduced	lb.	.08	@ .12
pure		.12	@ .14
Toluidine toner	lb.	2.10	@ 2.25
Venetian red	lb.	.03½	@ .06
Vermillion, quicksilver, English	lb.	1.20	@ —
domestic	lb.	.25	@ .30

Whites

Albalith	lb.	.07	@ .07½
Aluminum bronze	lb.	.55	@ .60
Azolith	lb.	.06½	@ .07
Lithopone, domestic (factory)	lb.	.06¾	@ .07
Zinc Oxide—American Process XX red	lb.	.07⅞	@ .08⅛
Kadox, black label, bags, cars		.09½	@ —
blue " " "		.09¼	@ —
red " " "		.09	@ —
American Azo: ZZZ (lead free)	lb.	.07¾	@ .08¼
ZZ (under 5 per cent leaded)	lb.	.07	@ .07½
Z (8-10 per cent leaded)	lb.	.06¾	@ .07¼
Zinc Oxide—French Process White seal	lb.	.12	@ .12½
Green seal	lb.	.10¾	@ .11¼
Red seal	lb.	.09¾	@ .10¼

Yellows

Chrome, light		.17	@ .18
dark and medium	lb.	.17	@ .18
Cadmium Sulphide	lb.	1.75	@ 2.50
Ocher, French	lb.	.01¾	@ .03
domestic	lb.	.02¼	@ .03

COMPOUNDING INGREDIENTS

Aluminum flake	ton	23.00	@29.00
hydrate light	lb.	.17	@ .18
Ammonia carbonate,	lb.	.09¼	@ .10½
Barium carbonate,	ton	85.00	@90.00
Barium Dust	lb.	.05	@ .06
Barytes southern off-color,	ton	15.00	@18.00
Western, prime white	ton	23.00	@24.00
Basofor	lb.	.04¾	@ —
Blanc fixe, dry f.o.b. works	lb.	.04	@ —
Carrara filler	lb.	.01½	@ .02
Chalk, precipitated, extra light	lb.	.04¼	@ .05
heavy	lb.	.03⅛	@ .04
Clay, China, domestic,	ton	15.00	@16.50
Dixie	ton	22.00	@32.00
Blue Ridge	ton	12.00	@25.00
Fossil flour	lb.	.04	@ —
Glues, extra white	lb.	.30	@ .40
medium white	lb.	.20	@ .26
cabinet	lb.	.18	@ .28
cabinet low grade	lb.	.15	@ .18
common bone	lb.	.11	@ .15
Graphite flake, bbls.	lb.	.06½	@ .12
amorphous	lb.	.04	@ .10
Infusorial earth, powdered	ton	60.00	@ —
bolted	ton	70.00	@ —
Liquid latex	gal.	1.30	@ —
Mica, powdered	lb.	.15	@ —
Rotten Stone (powdered)	lb.	.02½	@ .04½
Soapstone, powdered	ton	15.00	@20.00
Starch, powdered	cwt.	3.07	@ 3.34
Talc, domestic	ton	15.00	@18.00
French	ton	20.00	@ —
French, high grade	ton	40.00	@ —
Italian	ton	47.00	@58.00
Terra Alba	cwt.	1.85	@ 2.00
Tripoli, white	lb.	.02	@ .02¼
Whiting, commercial	cwt.	1.00	@ —
gilder's bolted	cwt.	1.10	@ —
English cliffstone	cwt.	1.50	@ —
Paris white American	cwt.	1.25	@ —
Quaker	ton	13.00	@15.00
Wood pulp XXX	ton	35.00	@ —
" " X	ton	25.00	@ —
Zinc Oxide— lead free	lb.	.07⅞	@ —
5% leaded		.07	@ —
10% lead sulphate	lb.	.06¾	@ —
20% lead sulphate	lb.	.06¾	@ —
35% lead sulphate	lb.	.06¾	@ —

(Also see whites)

MINERAL RUBBER

Genasco (factory)	ton	50.00	@52.00
Granulated M.R.	ton	36.00	@47.00
Hard hydrocarbon	ton	30.00	@40.00
Soft hydrocarbon	ton	30.00	@40.00
320/340 M. P. hydrocarbon (c. l. factory)	ton	45.00	@50.00
300/310 M. P. hydrocarbon (c.l. factory)	ton	40.00	@45.00
Synpro, granulated, M. R. (factory)	ton	55.00	@70.00

SOFTENERS

Acids

Acetic, 28 per cent	cwt.	3.38	@ 3.63
Cresylic, 97%	gal.	.73	@ .85
95%	gal.	.68	@ .80
Muriatic, 20%	100 lb.	1.00	@ 1.10
Nitric, 36 degrees	cwt.	4.50	@ 5.00
Sulphuric, 60 degrees	ton	11.00	@12.00
66 degrees	ton	15.00	@16.00
Tartaric, crystals	lb.	.30	@ —

Alkalies

Caustic soda, 76%	cwt.	3.76	@ 3.91
Soda ash, 58%	cwt.	2.04	@ 2.19

Oils

Castor, No. 3, bbls.	lb.	.14½	@ —
Chinawood, bbls.	lb.	.20	@ .20¼
Corn, crude, bbls.	lb.	.11¾	@ —
refined	lb.	.13½	@ —
Cottonseed, crude		9.12½	@ 9.37½
Glycerine,	lb.	.16½	@ .17
Linseed, domestic	gal.	.92	@ —
Palm, Niger	lb.	.07¼	@ —
Lagos	lb.	.08⅛	@ .08¼
Peanut,domestic,crude	lb.	.13	@ —
Petroleum, amber	lb.	.04	@ —
dark, amber		.03⅝	@ —
Pine, steam distilled	lb.	.60	@ —
Rapeseed, refined	gal.	.85	@ .90
blown	gal.	1.00	@ nom.
Rosin, first rectified	gal.	.43	@ .45
second refined	gal.	.46	@ .47
Tar, commercial	gal.	.30	@ —
Soya Bean		.12½	@ —

Resins and Pitches

Cumar resin, hard	lb.	.09	@ .10
soft	lb.	.09	@ .10
Parra M.R.	lb.	.06	@ .07
Tar Retort	bbl.	11.00	@ —
kiln burned	bbl.	11.00	@ —
Pitch, Burgundy	lb.	.05	@ .06
coal tar	gal.	.06	@ .08
pine	bbl.	6.50	@ —
Rosin, grade K	bbl.	6.30	@ —
Shellac, fine orange	lb.	.61	@ .62

Solvents

Acetone, drums	lb.	.25	@ —
Alcohol, denatured, No. 1 bbls.	gal.	.52½	@ .56½
Benzol, 90%	gal.	.21	@ .26
pure		.23	@ .28
Carbon bisulphide	lb.	.06	@ .07
Tetrachloride	lb.	.09	@ .10½
Dimethylaniline	lb.	.39	@ .41
Motor gasoline, steel bbls.	gal.	.20	@ —
Naptha, V. M. & P.	gal.	.19	@ —
Toluene		.26	@ .31
Turpentine, spirits	gal.	1.04	@ —
wood	gal.	.90	@ .92

Waxes

Bayberry	lb.	.25	@ .26
Beeswax	lb.	.40	@ .42
Carnauba, No. 1	lb.	.36	@ .40
Ceresin, white	lb.	.10	@ .11
Montan, crude	lb.	.06	@ .06½
Ozokerite, black	lb.	.23	@ .24
green	lb.	.27	@ .28
Paraffine	lb.	.04	@ .04¼
Phenol	lb.	25	@ .26
Sweet wax	lb.	.10	@ .12

SUBSTITUTES

Black	lb.	.09	@ .14
White	lb.	.10	@ .16
Brown	lb.	.10	@ .15
Brown factice	lb.	.09½	@ .13
White factice	lb.	.08½	@ .15

VULCANIZING INGREDIENTS

Black hyposulphite	lb.	.20	@ .25
Sulphur Chloride (drums)	lb.	.04	@ .05
Sulphur flour Commercial, (bags)		1.35	@ 1.70
Superfine		2.00	@ 2.40
Bergenp't brand (bags)	cwt.	2.45	@ 2.75
(bbls.)	cwt.	2.70	@ 3.25

Chemicals

Antimony Sulphurets—Prices are the same as reported two weeks ago, and there has been no change in fundamental characteristics aside from the further strengthening of the tone in basic material due to depleted stocks in this country which is an augury for increasing values of derivatives.

Caustic Soda—A very good movement continues in caustic soda. Consumers are taking delivery of all material on contracts and in not a few instances their current requirements have exceeded these so that they have been forced into the spot market thus giving the latter a lively and firm appearance. The undertone has been steady with the contract price for solid caustic, basis 76 per cent in carlots at the works, quotably unchanged at $3.10 per 100 pounds. Less than cars in lots of five drums and more are held firmly for $3.76 per 100 pounds, on the spot.

Acetic Acid—The situation in this item admits of some speculation as to the near future of prices. There has been a moderate demand of more or less routine character, but the movement has not been wholly satisfactory. This is ascribed to the growing reluctance of buyers to make large commitments on the basis of current quotations which are considered high. Coupled with this has been the large growth of acetate of lime stocks within the past month or two, causing many to look for a downward revision of the basic material shortly. This, of course, spells a weaker market for derivatives.

Lithopone—There is no let-up in the call for lithopone and producers continue to run their plants close to capacity to meet contracts. Not a great deal of foreign is being offered now and, anyhow, consumers generally are very favorable to domestic grades. These are being held at 6½ cents a pound in bags for carlots, 6¾ cents for barrels and 7 cents for less than cars in barrels.

Zinc Oxide—Demand from the tire industry is said to be picking up, some good contracts having been placed within the past week or ten days. There is little accumulation in any quarter and without any pressure to speak of the tone of the market is steady to firm. French process red seal still is quoted at 9¾ cents a pound.

Barytes—The Western brands are easier and moderate reductions have been made, best Missouri grades now being offered at $23.00 a ton, against $24.00 a ton a short time ago. The market is suffering mainly from overproduction to a certain extent. Demand is quite good, but sellers appear to be just a little too anxious to get the business.

Carbon Black—There has not been any weakening of the general market despite continued reports of steady accumulation. Some producers even report mild improvement in the situation as far as they are concerned. In all probability the production will be increased, rather than decreased, during the next few months as more new plants are being erected right along and few, if any, of the older ones have suspended or curtailed operations.

China Clay—Consumers are keeping up a steady call for china clay and are paying full asking prices for supplies, or close to them. The tone is quite steady at $16.25 to $23.25 for imported and $15 to $18 for domestic at production points.

Reclaimed Rubber

NEW YORK, February 1, 1924

A more optimistic spirit prevails in the reclaimed rubber trade, this being engendered by increasing business in various lines and well maintained prices. Quotations have not shown any commentable change in the past couple of weeks, but reclaimers are refusing to shade in the case of several items where a short time ago concessions from asking quotations were possible. Operations in some of the reclaiming plants are on the increase, while others are said to be going close to capacity. In addition, demand for products has improved appreciably and some of the leading manufacturers are reported well booked up a month or two ahead. Tires and tubes are reported to be meeting with the best call, with tire manufacturers taking sizable quantities.

Floating Tube	.15¼	@	.15½
Friction	.22½	@	.23½
Boots and Shoes (unwashed)	.10	@	.10¼
Boots and Shoes (washed)	.13	@	.13¼
Mechanical	.09½	@	.10⅛
Hose	.10	@	.11
Tires, truck	.08¼	@	.08⅝
Tires, auto, black	.09	@	.09¼
Black (washed)	.11	@	.11¼
White	.15	@	.15⅛
Dark Gray	.10	@	.10¼
Light Gray	.11	@	.11¼

Scrap Rubber

NEW YORK, February 1, 1924

The scrap rubber market continues to present a quiet appearance in all classifications. Demand is spasmodic and not particularly good for any one description. Buyers continue to hunt for bargains and when unable to find them limit their orders to just enough to cover pressing requirements. Supplies are coming forward in larger volume and exerting a depressing influence on values. Moreover, the trade generally looks for increasing receipts from now on and is not at all optimistic over the price outlook. Some dealers have fair orders in hand and are said to be covering on futures, at the same time trying to get rid of their spot supplies. Prices of boots and shoes are considered too high in proportion to tires and tubes. This explains the small advance that has been named on asking quotations for the latter. Changes have been narrow and irregular reflecting the situation from the standpoint of buyer and seller alike.

Auto tire peelings	.01	@	.01⅛
Standard White auto ton	22.00	@	25.00
Mixed auto ton	13.00	@	14.00
Bicycle tires ton	8.00	@	9.00
Clean solid truck tires	.00¾	@	.00⅞
Arctics, trimmed	.01⅝	@	.01¾
Inner tubes, No. 1	.03½	@	.03⅝
Inner tubes, compounded	.02⅝	@	.02½
Inner tubes, red	.02¼	@	.02⅜
Battery jars, clean hard rubber	.01	@	.01¼
Rubber Hose ton	10.00	@	12.00
Red packing	.01	@	.01¼
White druggist sundries	.01½	@	—
Boots and shoes	.02½	@	.02⅝
Arctics, untrimmed	.01⅝	@	.01½

Crude Rubber

NEW YORK, January 30, 1924

The past two weeks have witnessed renewed weakness in the crude rubber market where prices on the standard grades of plantations have declined a cent to a cent-and-a-quarter a pound on spot and future positions.

The most generally accepted explanation of this decline is that of the large increase in imports of crude rubber into this country in December over November, the totals being 27,871 tons and 13,392 tons, respectively, a gain of 14,479 tons for December. A good part of this rubber served to fill immediate commitments of sellers here and at the same time caused a material contraction in demand. This has been reflected in a decided slowing up in the call from leading tire manufacturers at a time when it was expected that orders from that quarter would begin to increase. While factory interests have continued to operate in the market from day to day their purchases have averaged much lighter than previously anticipated, few orders running above 25 or 30 tons at a time, and the turnover in the aggregate has been unimpressive. Moreover, this buying has been restricted to prompt and nearby deliveries of smoked sheets and the crepes, so that distant futures, which are in a relatively firmer technical position than nearbys, have been forced to follow closely the trend of the latter.

Other factors have been of a more bullish tenor. Outstanding among these in importance of relationship to the crude rubber market has been the reported intention of the Stevenson Restriction Committee to reduce the export allotment limit for the next quarter beginning February 1, by 5 per cent making it 55 per cent of "standard production." In addition, it is understood that the Rubber Growers' Association of London has submitted to the restriction committee a plan for further drastically curtailing production in the British possessions by cutting the arbitrary "standard production" from 335,000 tons annually to 255,000 tons. This would make a total reduction of 80,000 tons a year in production, and under the 55 per cent export allowance reduce monthly shipments to about 11,700 tons as against 16,750 tons under the present practice of 60 per cent of a 335,000-ton standard production. It is said that the R.G.A. also submitted plans for reducing tapping by 12,000 to 15,000 tons annually.

On the strength of the above report the market rose sharply in both New York and London, prices here going up a full cent a pound in the course of one day's trading, while an advance of a farthing to a half-penny was recorded in London. The levels were not maintained, however, for the advance uncovered quite a few holders who were only too willing to sell and their offerings proved too large to be readily absorbed except on a scale down.

(*Continued on Next Page*)

Rubber Patents

GRANTED JANUARY 15, 1924

1,480,580. Tire Filler. Thomas C. Watkins, Brooklawn, N. J., assignor to Master Tubeless Tire Corp., a Corporation of Delaware.

1,480,680. Pessary. Fred Mack Glover, West Point, Ga.

1,480,719. Method and Apparatus for Making and Manimulating Tires. John R. Gammeter, Akron, Ohio, Assignor to The B. F. Goodrich Co., New York, N. Y., a Corporation of New York.

1,480,807. Lithopone and Process of Making the Same. Edward C. Holton, Olmstead Falls, Ohio, and Jay Clyde Owans, Chicago, Ill., assignors to the Sherwin-Williams Co., Cleveland, Ohio, a Corporation of Ohio.

1,480,978. Patch for Inner Tubes. Charles C. Wight, San Antonio, Tex.

1,481,018. Pneumatic-Tire Valve. Zeno Littman, New York, N. Y.

1,481,197. Purification of Hydrocarbons. David F. Gould. Cornwells, Pa., assignor to the Barrett Company, a Corporation of New Jersey.

GRANTED JANUARY 22, 1924

1,481,326. Apparatus for the Manufacture of Acetic Acid. Howard W. Matheson, Shawinigan Falls, Quebec, Canada, assignor to Canadian Electro Products Co., Ltd., Montreal, Quebec, Canada.

1,481,440. Tire Tread. Antony Silvene, Victoria, British Columbia, Canada.

1,481,482. Agent for Accelerating Vulcanization of Rubber and Method of Producing Same. Stanley John Peachey, London, England.

1,481,488. Tire. Nathan L. Tobin, Chicago, Ill.

1,481,668. Nonskid Tire. Otto Ihlan, Hanover, Germany, assignor to Continental Caoutchouc-und Gutta-Percha Compagnie, Hanover, Germany, a Firm.

Trade Marks

JANUARY 15, 1924

LANSBURGH & BRO.—No. 173,800. Lansburgh & Bro., Inc., Washington, D. C. Rubber Cloth. Rubber Carriage Drill and Duck, Rubber Mats, Rubber Floor and Bath Mats, India Rubber Stair Nosings, India Rubber Binding for Mats, Rubber Sheeting, etc.

KORE X ARCH—No. 177,504. Melanson Shoe Co., Lynn, Mass. Shoes of Leather and Fabric, With or Without Rubber Heels, and Canvas Shoes With Rubber or Leather Soles and Heels.

FOOT GUIDE—No. 177,571. Joseph Pietzuch, Cincinnati, Ohio. Rubber Heels and Lifts for Heels (Made of Rubber or Analagous Material) for Boots, Shoes and Slippers.

HILLSBORO KIXIE SHOE CO.—No. 178,102. Hillsboro Shoe Co., Manchester, N. H. Boots and Shoes Made in Whole or in Part of Leather and of Fabric and Having Soles of Leather or Rubber or Composition.

PARACORD—No. 181,017. Endicott Johnson Corp., Endicott, N. Y. Rubber Soles and Heels.

HEXAGON—No. 187,052. Hexagon Tire Co., Inc., New York, N. Y. Automobile and Truck Rubber and Rubber and Fabric Tires and Rubber Inner Tubes Therefor.

ALL-IN-ONE—No. 188,251. Earl F. Olson, Doing Business as All-in-one Adhesive Co., St. Louis, Mo. Adhesive for Repair and Attachment of Articles of Rubber, Leather and Cloth.

JANUARY 22, 1924

R M—No. 166,101. The Rubsam Sales Co., Cleveland, Ohio. Vehicle Wheels, Felly Bands, Rims for Supporting Rubber Tires, and Appurtenances for Such Rims, Specifically Rim Nuts, Rim Bolts and Rim Clamps.

The Mark Consists the name "Hargeaves H Cord." Within Two Concentric Circles.—No. 178,606. Hargeaves, Inc., Detroit, Mich. Pneumatic Automobile Tires, Composed of Rubber and Fabric, Including Cord Fabric.

ARCH FORM—No. 183,989. Thomas G. Plant Co., Boston, Mass. Rubber Heels.

BIG FOUR—No. 185,664. Melville Shoe Corp., New York, N. Y. Rubber Heels for Shoes.

SCHACHT SUPER TREAD — No. 187,230. Schacht Rubber Mfg. Co., Huntington, Ind. Rubber Heels.

ROAMER—No. 187,681. Laing, Ahrrar & Chamberlin, Philadelphia, Pa. Rubber Heels.

INTERSTATE—No. 188,727. The Victor Rubber Co., Maitland, Springfield, Ohio. Pneumatic Tires.

BLUE MOON—No. 189,136. Pennsylvania Rubber Co., Jeanette, Pa. Rubber Tires for Vehicles.

New Incorporations

MASSACHUSETTS

New England Rubber Company, Boston, Mass. 300 shares, no par value. John Harrison, S. Shapiro, and Samuel Solberg.

Cambridge Rubber Company, Cambridge, Mass. $500,000. Warren McPherson, George H. Rockwell, Ernest W. Dunbar.

NEW YORK

Nestler Rubber Fusing Company, New York City. $50,000. J. C. and B. A. Kimball and E. Nestler.

Goodall Rubber Company, New York City. Manufacture of metallic and rubber hose. $10,000.

OHIO

The Titan Tire and Rubber Company, Canton, Ohio. $250,000. Raymond W. Kent, Ned M. Austin, W. E. Shaeffer, A. R. McConnell and M. L. Quigley.

PENNSYLVANIA

Nu-Cord Tire and Rubber Company, Greensburg, Pa. Manufacture and distribution of rubber tires, tubes, etc. $450,000. William Appleby, William Anderson and John E. Bigley

TEXAS

Rubber Products Company, Fort Worth, Tex. At $2,000. C. D. Hibbs, N. T. Mazza and C. W. C. Lee.

Crude Rubber

(Continued from Page 347)

The end of the third week in January saw spot sheets selling around 26 cents a pound in the local market. The fourth week started off in an easy manner, following which there was considerable irregularity with prices advancing and reacting fractionally from day to day. Feeling was improved by a further decrease of 264 tons in London stocks and by reports that Dutch plantation owners had expressed themselves in favor of joining in restriction with the British, but these factors were offset by the development of violent weakness in exchange which considerably restricted business between New York and London. At the end of the week the market was barely steady on a spot basis of 25½ cents a pound. During the past few days the market has continued to weaken despite the restriction outlook, and at the close today the tone was soft with spot sheets offering at 25⅛ cents a pound and buyers having little trouble in penetrating the surface.

Action of London Market

London has pursued the same general trend as New York, being influenced by the same conditions, and in addition has been more or less affected by the big political shake-up in that country. Prices, however, have not shown the same degree of weakness, and current quotations on that center are only ¼ d to ⅜ d a pound below those quoted in our last reports.

Last week stocks in public warehouses in London increased 84 tons, bringing the total to 57,188 tons at the close of business Saturday. Present stocks, however, are down 2,484 tons from a month ago and 16,173 tons less than the corresponding week of 1923, as shown in the following table:

Week ended:	Tons.
Jan. 26	57,138
Jan. 19	57,054
Dec. 29, 1923	59,672
Jan. 27, 1923	73,361

Of the total reduction in London stocks since last month 1,345 tons were accounted for by the loss in the Concordia wharf fire.

Today's closing prices on New York, London and Singapore markets are as follows:

NEW YORK MARKET

Plantations—			
Ribbed Smoked Sheets:			
Spot	.25⅛	@	—
February	.25⅛	@	—
March	.25⅜	@	—
April-June	.25⅜	@	.25¾
July-September	.26¼	@	.26⅜
First Latex, crepe, spot	.25⅜	@	.25½
Amber Crepe No. 1, spot	.25¼	@	—
" " No. 2,	.24½	@	—
" " No. 3,	.24	@	—
" " No. 4,	.23¾	@	—
Brown Crepe, Rolled	.24½	@	—
" " Clean, thin	.24½	@	—
" " Specky	.24¼	@	—
Scrap, Colombo No. 1	.22	@	—
Pontianac—			
Prime Pressed	.13	@	.14
Palembang	nominal		
Bangermassin	.09	@	—
Sarawak	.07⅞	@	—
Paras—			
Up-river Fine	.20¾	@	—
" Medium	.18½	@	.19
" Coarse	.17¼	@	—
Islands, fine	.19¼	@	—
" medium	nominal		
" coarse	.11½	@	nom.
Cameta	.12	@	nom.
Madeira Fine	.23	@	—
Acre Bolivian, fine	.21	@	—
Cut Beni Bolivian, fine	.21½	@	—
Tapajos, fine	.19¼	@	—
Xingu Ball	.18	@	—
Caucho Ball—			
Upper, shipment	.19½	@	—
Lower, "	.18	@	—
Centrals—			
Central, scrap, prime	.17	@	—
Corinto, scrap	.17¼	@	—
Esmeralda, sausage	.17½	@	—
Guayule, w and d.	.25	@	.26
Africans—			
Benzuela, No. 1	.16	@	—
" No. 2	.15	@	—
Congo, upper, black	.21	@	—
" " red	.21	@	—
Balata—			
Block, Colabia	.65	@	—
" Venezuela	.71	@	—
" Cindad	.75	@	—
Surinam, sheet	.77	@	—
Gutta Percha—			
Siak	.18¾	@	.19
Red Macassar	2.75	@	3.00
Chicle—			
Honduras	.60	@	.62
Mexican, duty paid	.65	@	—

LONDON MARKET

Standard Ribbed Smoked Sheets—	
Spot	13⅞d
Feb.	13⅞
Mar.	14⅛
Apr.-June	14⅝
July-Sept.	14⅝

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—	
Spot	13½d
Feb.-Mar.	13⅝
Apr.-June	13⅞
July-Sept.	14¼

Crowther Arrives in U. S.

(Continued from Page 333)

cological exhibit showing the scientific handling of diseases and research work in the Far East.

In addition to the above exhibits, the Association will show a large scale model of a plantation rubber factory with machinery in actual operation. During the exposition, a number of leading rubber experts from all parts of the world will read papers which will be discussed later by the Association. The exposition will be held in conjunction with the Annual Fair in Brussels, an affair which was visited by a milllon and a quarter people with 27 different nationalities exhibiting the last time it was held.

Mr. Crowther expects to be in this country and Canada for a period of five or six weeks during which time he expects to meet a large number of the leading rubber executives in the various factories visited.